August 2000
Volume 68 No 8

Amateur Radio

WIRELESS INSTITUTE OF AUSTRALIA

Tony Whitaker:
Walking
'On Air'
from Sydney to Brisbane
Part 2

plus

WIA, Divisional & Club News
ALARA
& regular columns

- RF Voltage Probe (with notes on power measurement)
- Novice Notes: A Guide to Test Equipment

Awards
Contests

Remembrance Day Contest

Gil Sones VK3AUI
Technical Abstracts:
Crossed Field Antenna
Offset Fed Wire Element Beam

WIA Yearbook 2000

Callbook Listings
Frequency Listings
Band Plans
Repeater Lists
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Amateur Radio

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Our cover this month

REMEMBRANCE DAY CONTEST: The Adelaide War Memorial
All Honor Give to Those Who Nobly Striving, Nobly Fell That We Might Live

Contributions to Amateur Radio
Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues
Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

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When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer
The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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EDITORS COMMENT

Let us not forget...

The Remembrance Day Contest is this month. The Friendly Contest, The great Inter-Divisional Competition.

Let us not forget what it is, a time to remember those Amateurs who died in war to preserve our way of life and all that entails. Let us take a few moments to think about these people, as we wait for the RD to commence. If you have not listened to the opening address for a while, listen on the 12th.

I have to apologise to the AMSAT readers for an unfortunate glitch that removed the column from the July issue. I am working with Bill to publish the most important information this month and next, if necessary. There are more letters this month. Letters are shortening so we will be able to publish more and present the few that I am still holding.

The ACA seems to be forever in WIA news. Some changes hurt us but are temporary; others seem to be beneficial. See the Presidents Column for the latest news. My personal view is that CW activity will not change much, there will be more phone activity and possible other modes will also show a small increase in activity. Morse classes will be shorter and we will have advanced classes for the few who really want to operate on the HF bands at 10 to 15 plus WPM.

AR content is driven by what is submitted so there is less Technical material this month and the General material is a bit thin. I have had a few articles from overseas Amateur Journals selected for possible use in AR, but the specialists will already have found and read most of them and the more general ones may be less relevant to the Australian situation. This makes me wonder if they should be used as a frequent source of material for AR. However if you come across an article you think deserves a wider Australian audience please let me know.

Well I still have only looked at my 1.2GHz kit. I have practiced soldering SMDs and have modified a FM95 for 432MHz, but I have not been on air. Hope you have had a better month.

WHAT ARE YOU DOING IN AUGUST?

You should have got your station tidied up for the RD 12/13th August. VK3 are working hard to win this year. Will VK7 be able to hold off the challenge? The other major event to prepare for is JOTA 21/22nd October. The good we can do for Amateur Radio in JOTA is immense and the chances for publicity are large. Please make the most of the opportunity.

Colwyn VK5UE

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of JUNE 2000.

L10177	MR M D THURGAR	VK2TH	MR J J GERHARD
L21176	MR H H BONHS	VK3DGN	MR D GREEN
L21177	MR G C OSBORNE	VK3DXL	MR D BROWN
L21178	MR C J FLAK	VK3GOM	MR G FULLER
L21179	MR J S HASLER	VK3HFB	MR B TOSELAND
L31553	MR P ERNST	VK3JIA	MR A ROGERS
VK1BKS	MR A S BROOKS	VK3KIC	MR D FRIEND
VK2BRB	MR R BOUWMAN	VK3NMK	MR M J W HURNELL
VK2FKU	MR W ROGAN	VK3TZF	MR J FREEMANTLE
VK2GFO	MR R C BROWN	VK3XAR	MR S M BUGHI
VK2HDH	MR C D MEAGHER	VK3YIL	MR I BRANCH
VK2HI	MR G BARROW	VK3ZXR	MR S MATHIAS
VK2KVJ	MR C M EDWARDS	VK5CX	MR N M BLUHM
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VK2QG	MR P M REEDMAN	VK7DA	MR D APTED

WIA News

Australian Licences acCEPTed in Europe

Australian Communications Authority

Dear Mr Naish,

Reciprocal Amateur Qualifications arrangements with European Conference of Postal and Telecommunications Administrations

I wish to advise that the Australian Communications Authority (ACA) has recently finalised -arrangements to establish reciprocal Amateur licensing arrangements between Australia and the European Conference of Postal and Telecomunications Administrations (CEPT).

As you are aware the operation of Amateur stations in Australia requires a person to hold an Australian Amateur certificate of proficiency or an equivalent overseas qualification or licence before an Amateur licence may be granted.

Continued on page 4

Compiled by Richard Murnane VK2SKY
Federal News Coordinator

Note – this is my last WIANews column. I'm hanging up my hat after a year of what was originally intended as a temporary fill-in assignment. I'm also standing down from the position of Federal webmaster after some four years in the job, in both official and unofficial capacities. This hopefully will free up time for me to pursue a number of personal projects. (this is my personal GST rebate: **G**et **S**ome **T**ime back!) – 73
Richard VK2SKY
(Thanks Richard your efforts are appreciated. Colwyn VK5UE)

Comment

Peter Naish, VK2BPN
WIA Federal President

This year is proving to be a very significant one for Amateur Radio in Australia. The WIA has been able to make great progress in a number of important areas which are of concern to all radio amateurs. Already there have been several notable achievements in 2000 and they continue to occur. Here are a couple of the most recent of these.

In line with the move in many overseas countries we have obtained permission for those with the Intermediate Grade of Licence to operate in the HF bands in the same manner as those with Unrestricted Licences, thus reducing the Morse Code qualification speed to 5 words per minute for full access to these bands. This is a vital first step to strengthening our hobby at a time when there are other methods of communication, for example the Internet, which have the potential to divert interest away from amateur radio. The great majority of amateurs have welcomed this change but there are a few full-call licencees who see it as a devaluation of their privileges. I am sorry that they feel that way but I believe that they will come see the benefits to amateur radio in due course.

I have just received confirmation from the ACA of their decision to establish reciprocal amateur licensing arrangements with the European Conference of Postal and Telecommunications Administrations, CEPT. Australia is now a participating non-CEPT country. For many years Australia has had reciprocal licensing with a number of countries which have been negotiated on a one-to-one basis, often after considerable expenditure of inter-government effort. These arrangements will remain but will be enlarged to include additional countries covered by CEPT. The mechanism for this is the adoption of the Harmonised Amateur Radio Examination Certificate, HAREC, which is a common qualification for CEPT countries. An Australian unrestricted or limited licensee will now be able to apply for and obtain an equivalent licence in a CEPT country without further examination. The converse is also true in that a visiting licensee from a CEPT country may similarly apply for an equivalent Australian licence. It should be noted that this arrangement does not apply to the novice licence. Also, it must be noted that it will remain necessary to apply for a licence in the overseas country. The short-term visitors facility available in a number of CEPT countries whereby amateur radio operations may take place without obtaining a specific temporary licence, will not apply to Australian licensees or visitors to Australia. Further information on this new facility is available on the WIA web site as well as the ACA web site.

At the end of August, the 11th. IARU Region 3 Conference is being held in Darwin. As you will know this is an important tri-annual event at which the countries of IARU Region 3, namely Asia and the Pacific, get together to consider and make decisions on strategic amateur radio policy. Some 70 delegates from Region 3 as well as representatives of Regions 1 and 2 are attending. I encourage you to visit the web site set up by the WIA which contains the full set of papers which have been tabled by the Region 3 amateur radio organisations and which will form the core subjects for the working group discussions. As radio amateurs you should be keep yourselves up to date on all of the WIA activities including our international policies. This is your hobby and the WIA must work to achieve your needs. The Region 3 Conference site and details of the conference papers are available via links from the WIA Federal web site at www.wia.org.au.

ar

Australian Licences acCEPTed in Europe

Continued from page 3

Currently to enable Australian Amateur operators wishing to operate whilst overseas, the ACA has had to establish reciprocal Amateur licensing arrangements with individual countries, to allow Australian qualifications to be recognised and necessary licences to be issued. Through this process the ACA maintains a comparable level of equivalent qualifications and licences that is then in turn used as the basis for granting licences to overseas Amateurs wishing to operate in Australia.

In order to simplify reciprocal arrangements for Amateur operators, the ACA, in 1996 requested CEPT approval to participate in Recommendation T/R 61-02

On 3 February 2000, CEPT extended Recommendation T/R 61-02 to include Australia as a participating non-CEPT country. This inclusion allows for the recognition of Australian Amateur qualifications by other CEPT participating countries, and removes the need to maintain many of the previous individual agreements with these countries.

However, the Australian participation in Recommendation T/R 61-02 does not replace or mitigate the need to maintain existing reciprocal licensing arrangements that Australia has with non participating countries.

Recomendation T/R 61-02 is underpinned by a common qualification agreement know as the Harmonised Amateur Radio Examination Certificate (HAREC).

This arrangement only applies in respect of the Amateur Operator's Certificate of Proficiency (AOCP) and the Amateur Operator's Limited Certificate of Proficiency (AOLCP)

The table below shows how Australian qualifications correspond with HAREC certification, and how in turn CEPT countries HAREC certification corresponds with Australian licensing types,

Australian Qualification	HAREC Equivalent,	HAREC Issued by Other Countries*	Australian Licence Type
AOCP	LEVEL A	LEVEL A	Unrestricted
AOLCP	LEVEL B	LEVEL B	Limited

It is important to note that the Australian qualifications NAOCP[1] and NLAOCP[2] are not covered by HAREC arrangements.

*A list of participating countries is available at:-www.ero.dk (documentation/recommendations/TR61-02).

For further information regarding, Australian licence types or operating procedures see the ACA homepage at www.aca.gov.au.

For your information, Australia is not participating in CEPT Recommendation T/R 61 -01 which makes it possible for radio amateurs from participating, CEPT countries to operate during short visits in other participating CEPT countries without obtaining an individual temporary licence from the visited participating CEPT country. As such, participation in Recommendation T/R 61-02 does not remove the requirement for either Australian Amateurs visiting overseas countries or visitors to Australia, to apply for, and obtain a licence prior to operation.

On 1 September 2000 the ACA will introduce new certificates[3] for AOCP and AOLCP holders. These new certificates will include corresponding HARE certification. Holders of AOCP and AOLCP certificates issued prior to 1 September 2000 may apply for a replacement HARE endorsed certificate should there be a desire by the operator to travel to participating countries, In essence holders of a HAREC will be able to apply for a licence in countries that are participating in this arrangement under Recommendation T/R 61-02 without the need to sit further examinations to prove proficiency. Similarly, overseas operators, holding a current HAREC will be able to apply for an Australian Amateur licence, as indicated in the above table.

One of the benefits of this new reciprocal licensing arrangement is that it encompasses many countries that are not presently covered by an individual reciprocal licensing agreement with Australia.

Should you wish to discuss any of these issues further please contact John Mahlberg on 02 6256 5589.

Alan Jordan, Manager,
Radiocommunications Licensing Policy Team

1.NAOCP-. Novice Amateur Operator's Certificate of Proficiency

2 NLAOCP- Novice Limited Amateur Operator's Certificate of Proficiency

3 Further information on the new HAREC compliant certificates is available on the ACA's home page www.aca.gov.au

VK adopts 5wpm Morse code standard

Australia has become the 7th country to adopt the five-words-per-minute Morse code amateur licence test speed for full access to the HF amateur bands.

In an official announcement in the Commonwealth of Australia Gazette on the 12th of July, the Australian Communications Authority (ACA) changed the amateur regulations for the VK Intermediate grade licence that requires only 5wpm Morse code proficiency.

In doing so it lifted the previous HF band restrictions on the Intermediate Licence which can now use all bands below 30 MHz. The change had been anticipated following a submission to the ACA made by the Wireless Institute of Australia in March this year seeking a lowering of the code speed.

Australia is maintaining for the time being, its Unrestricted grade licence, that requires the passing of a 10wpm Morse code test - but this is only to satisfy the needs of reciprocal licensing agreements.

The HF operating privileges and conditions for the Intermediate and Unrestricted licences are now identical. Australia, in adopting 5wpm, has joined Denmark, Sweden, Britain, USA, South Africa and Gibraltar. Others including New Zealand, Canada, Singapore, India, Malaysia, Pakistan, Papua New Guinea, Kenya and countries in Europe are in various stages of seeking to lower the code speed to 5wpm.

Written by Jim Linton VK3PC

IARU Region III Conference

More than 70 delegates from 14 International Amateur Radio Union (IARU) Region III radio societies, plus representatives from Regions I and II, are registered so far for the 11th IARU Region III conference to be held in Darwin.

WIA IARU Liaison Coordinator, Grant Willis VK5ZWI, explained that the IARU is the peak body in the Amateur Service and represents it to the International Telecommunications Union (ITU) and other world radio and telecommunications regulatory and industry bodies.

Grant said that each IARU region meets once every three years (on alternate years) and this is the first time an IARU Region III Conference has been held in Australia. The conference in Darwin, to be held August 28 to September 1, is being hosted by the Wireless Institute of Australia, and partly funded by WIA members through a levy on their annual membership subscription.

The WIA has on-the-ground support from the Darwin Amateur Radio Club whose members will engage in meet-and-greet activities as delegates arrive. The club is also setting up and operating a special event station AX8IARU at the Carlton Hotel, the conference venue. The station will be active during the conference on the main HF bands, as well as on VHF and UHF around Darwin. Some satellite operation on UO-14 may also be attempted. The IARU Region III Board will also be in attendance and meet separately on administrative matters.

Anyone interested to learn more about the conference will find an array of informative and interesting input papers on a wide variety of amateur radio topics submitted by IARU Region III radio societies. The papers and other conference details can be found on the inter-linked Internet at three websites - www.cck.net.au/iaru/,

www.tbsa.com.au/~wiavic/iaru and www.jarl.or.jp/iaru-r3/

For those who do not have Internet access, a series of IARU RIII Bulletins are being issued over the next six weeks on packet radio - including input papers and conference update reports.

Issued by Jim Linton VK3PC,
IARU Region III Conference Media Officer

WIA papers for Region III Conference

Some of the issues the WIA will raise at the IARU Region III Conference in Darwin include:

- *80m band:* extension of the DX window (3776-3800 kHz) recently negotiated between the WIA and the ACA
- *40m band:* exclusive Amateur access to 7000-7100 kHz (the segment from 7100 kHz is shared with broadcasting services, rendering this portion of the band unusable after local sunset)
- *APRS:* a national 2m frequency for Automatic Position Reporting System operations
- *EMR:* Recent changes to electromagnetic radiation standards and the impact on the Amateur Radio service
- *Internet:* the growth of the Internet and its implications for the Amateur Radio service
- *LF:* proposed creation of a low frequency Amateur band below 200 kHz
- *LIPDs:* those so-called Low Interference Potential Devices and their impact on Amateur operations.
- *Morse Code:* changes to Amateur licensing requirements
- *ADSL:* Asynchronous Digital Subscriber Line data communications, and the RFI implications for Amateur Radio
- *STARS***:* Support of The Amateur Radio Service in IARU Region 3
- *VHF-UHF:* Standardising band plans in Region 3

The official IARU Region Conference web site is located at http://www.cck.net.au/iaru/, and details of the WIA's papers for the conference can be found at http://www.cck.net.au/iaru/papers/papers-index.html.

Amendments To Amateur Licence Conditions

The purpose of this letter is to advise you of recent amendments to the conditions applicable to Amateur licences.

These amendments, which are contained in the *Radiocommunications Licence Conditions (Amateur Licence) Amendment Determination 2000 (No.2)* (the LCD), came into effect by Gazettal on 12 July 2000. For your information I have attached a copy of the amendment determination.

The changes to the Amateur licence conditions:

- prohibit Unrestricted, Limited and Intermediate Amateur stations from operation in the Sydney Olympic Area (within 150 kilometres of the Sydney Olympic Park at Homebush Bay) in the frequency band 440 MHz - 450 MHz from 12 July 2000 until 30 October 2000;
- authorise the operation of Amateur Intermediate stations in the same Amateur bands as Amateur unrestricted stations; and
- authorise the transmission of news and information related to the operation of Amateur stations for the purpose of facilitating intercommunications.

A consolidated licence conditions determination is available on the ACA website at http://www.aca.gov.au/legal/determin/lcd/amateur.htm.

The ACA would appreciate the dissemination of the above information through the Wireless Institute of Australia's website and magazine.

If you require further information or wish to discuss these changes, please contact me by e-mail at clive.franklin@aca.gov.au or by phone on (02) 62565239.

Alan Jordan, Manager
Radiocommunications Licensing Policy Group
Radiofrequency Planning Group

More ACA Documents Updated

Further documents of interest that have been updated on the ACA web site:

- *ACA Licensing Amateur Operating Procedures* (http://www.aca.gov.au/publications/info/regs.htm)
- *ACA Licensing Citizen Band Radio Stations* (http://www.aca.gov.au/publications/info/cbrcl.htm)
- *ACA Licensing Disclosure of Personal Information* (http://www.aca.gov.au/publications/info/privacy.htm) - this relates to personal information about radio licensees that is publicly available, for example on the ACA web site.
- *Object and Scope of the Radiocommunications Act 1992* (http://www.aca.gov.au/publications/info/objectsofact.htm)
- *Emission Characteristics of Radio Transmissions* (http://www.aca.gov.au/publications/info/emission.htm)
- *Prohibited Devices* (http://www.aca.gov.au/publications/info/prohibit.htm)
- *Radio-controlled Models* (http://www.aca.gov.au/publications/info/models.htm)
- *Testing Radiocommunications Devices Where No Equipment Performance Requirements Are Specified* (Spectrum Impact Assessments) (http://www.aca.gov.au/publications/info/spectimp.htm)
- *Third Party Authorisations* (http://www.aca.gov.au/publications/info/third.htm)
- *Transfer of Apparatus Licences* (http://www.aca.gov.au/publications/info/transfer.htm)
- *Proposals to Operate radiocommunications Equipment that is Inconsistent with ACA Regulatory Arrangements* (http://www.aca.gov.au/publications/info/outpolaj.htm)
- *Short Range Spread Spectrum Devices* (http://www.aca.gov.au/publications/info/spreadsp.htm)
- *Testing Radiocommunications Devices Against ACA Equipment Performance Requirements* (http://www.aca.gov.au/publications/info/testepr.htm)
- The *ACA Consumer FAQ (Frequently Asked Questions)* paper at http://www.aca.gov.au/consumer/faq/index.htm has two new additions entitled Human Exposure to Electromagnetic Radiation and Mobile Telephony, Your Health and Regulation of Magnetic Radiation.
- The Policy Information Paper (PIP) entitled *Amateur Examinations* (http://www.aca.gov.au/publications/info/amatexam.htm). The International Telecommunications Union (ITU) References that were previously included in the PIP are now available in an attachment.
- *The Overview of Apparatus Licensing System PIP* (http://www.aca.gov.au/publications/info/overview.htm)
- *Amateur Licence* (http://www.aca.gov.au/publications/info/amateur.htm)
- *Amateurs Visiting Australia* (http://www.aca.gov.au/publications/info/visiting.htm)

(ACA web site)

News and Information transmissions — by all

The Australian Communications Authority (ACA) has in a change to the amateur regulations made it possible for any amateur station in Australia to transmit news and information bulletins.

This not only legitimises a number of existing radio club broadcasts, but also makes it possible for any radio amateur to set up a news and information session.

The WIA in all states will continue with its traditional Sunday broadcasts.

The ACA made the change through an amendment to the Licence Condition Determination for amateur stations which was published in the Commonwealth Gazette on 12 July, 2000.

The gazettal states that amateur licensees may use their station for "transmitting news and information services related to the operation of amateur stations, as a means of facilitating intercommunication".

Contributed by Jim Linton VK3PC

Amateur Licence Fees

The ACA has informed me that Amateur Radio Licences will be affected by the GST and that the component parts of the new fee applicable from July 1st. 2000 are as follows:

SAT = $22.08 SMC = $8.92 Admin. charge = $18.00 GST = $1.80 making a total of $50.80.

Peter Naish.

WIA Email Lists Update

Last August, we reported the creation of a number of email lists to allow you to receive WIA news and information via email. Hundreds of news bulletins are sent out to subscribers.

Recently, Onelist.com, which has hosted these lists, merged with eGroups.com. As a result, the addresses of the various email lists has changed (the old addresses still work, but may stop working sometime in the future.)

To subscribe to any of the lists, send a blank email message to the following addresses:

VK2 (New South Wales news
vk2news-subscribe@egroups.com

VK4 (Queensland) news
QNEWS-VK-subscribe@egroups.com

WIA Federal news
wia-subscribe@egroups.com

Promoting Amateur Radio
AmateurRadioPR-subscribe@egroups.com

VK2000 Olympics news
vk2000-subscribe@egroups.com

As always, subscriptions to these lists are free, to WIA members and non-members alike. You can also set up your own email lists by visiting eGroups at www.egroups.com.

Information about other email lists of interest to Australian Amateurs can be found at http://www.wia.org.au/links/MailingLists.html

WIA News

VK Spread Spectrum Group email list

Dave Horsfall VK2KFU has "decided to re-form the old Spread Spectrum Group from many years ago" for those interested in this form of communications, and has created an email list for those wishing to discuss this mode.

He says, "So, interested in weak signal work? No CW required? Do digital modes turn you on (in a manner of speaking)? Then try Spread Spectrum, a technical mode at its finest."

To join the SSG list, send a blank email to vk-ssg-subscribe@egroups.com, or point your web browser at www.egroups.com/group/vk-ssg.

AX3OLY

Olympic games callsign on air

Special event station AX3OLY has been allocated to WIA Victoria by the Australian Communications Authority to commemorate the Olympic Games being held in Sydney.

WIA Victoria members will be sporadically operating the station on DX bands using phone and CW. Band of operation being chosen to coincide with the best propagation at the time.

AX3OLY was activated for the first time to mark the arrival of the Olympic flame in VK3 as it reached the half way mark through its 100 day torch relay around Australia.

The special event station will later highlight the holding of Olympic soccer games in the VK3 capital city of Melbourne, Australia, which also hosted the 1956 Olympic Games. A commemorative QSL card will be available. QSL is to VK3WI. WIA VICTORIA Web site: www.tbsa.com.au/~wiavic

SILENT KEY

The WIA regrets to announce the recent passing of:-

J D ROBINSON	L21160
N A (Neville) LOFFMAN	VK2APL
R (Richard) SOULIE	VK2ARS
G (GEORGE) CRAGGS	VK2AYG
J (John) CRADDY	VK2BOK
J J MCFARLANE	VK2NPX
F (Frank) ROGERS	VK3AAX
G G THOMPSON	VK3AC
L W BENNIE	VK3ALB
O E K (Owen) TINK	VK3ON
K D (REV) HALL	VK5AKH
A F J LEAL	VK5LQ
M G SMITH	VK5TC
I GREGORY	VK6OV
R F (Richmond) GEE	VK7RF

EDUCATION

Brenda M Edmonds, VK3KT
128 Springfield Road
Blackburn North, Vic 3130.

Desperately seeking correspondence

In my last column in the June issue of *Amateur Radio* I mentioned the modifications needing to be made to examination papers as changes to the Regulations relating to Morse Code standards are put into place. At the time of writing this, the changes have not yet been gazetted. Again, once the matters are finalised, you will be notified. We will try to make as little disturbance to the system as possible.

Potential candidates often contact me directly or through the WIA Federal Office for information on classes, courses or examinations. I am at a disadvantage if I cannot answer these queries because I am unaware of activities in the candidates local area. Sometimes I can pass the query to the relevant Division, but I like to be able to do more than that. It is easy to give out web page addresses and hope that the enquirer has access to the Web even if only through their local library (although my experience with local libraries and the Internet has been definitely not encouraging). But the hard ones are those without such access and often in more remote geographical locations.

I have written previously of the need for a correspondence-type course. This need is being met to some extent by the Internet course recently established by Ron Bertrand VK2DQ,but there is still room for an on-paper or on-tape course.

The hardest part of arranging such a course is finding enough volunteers to monitor and assess the students' responses and provide the necessary feedback at each stage of the course.

It may be that there are such courses already running and I am just not aware of them. If you are running or know of someone who is running such a course, please let me know the details. I would be very pleased to see a copy of the material being used and the monitoring arrangements in place as you understand I am hesitant to recommend a course without some knowledge of its content and standard. However I would enjoy being able to tell the remote or housebound candidates that such courses do exist, and giving them the contact information.

If amateur radio is to remain as a viable hobby and attract new recruits to make up for those long-standing and dedicated amateurs who eventually become silent keys, it is necessary for each of us to play some part in the recruiting. There have been some uncomplimentary remarks about some of the amateur population published in other magazines of late. We need to retrieve our reputation for manners, helpfulness and balance before it is too late.

ar

An RF Voltage Probe

(with notes on power measurement)

Drew Diamond, VK3XU
45 Gatters Road.,
Wonga Park, 3115.

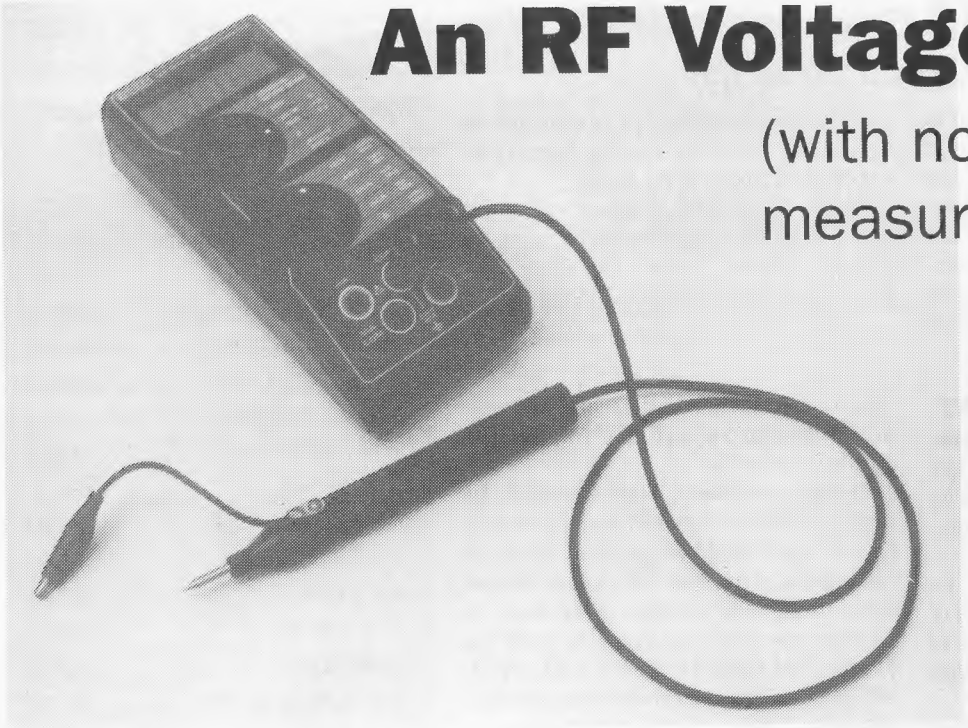


Photo 1: RF Probe and DMM

An ability to measure the amplitude of audio and RF signals is an extremely useful asset in radio repair and experimental work. For instance, published circuits often have handy notations showing typical values of RF voltage that may be expected in a properly working model. But the AC measuring range of ordinary analogue and digital multimeters is generally only sufficiently accurate from mains power frequencies to perhaps 1 kHz. However, if you have a digital multimeter (DMM), or vacuum-tube voltmeter (VTVM), or other DC voltage measuring device which has a customary input impedance of 10 Megohms, the addition of a simple RF probe will greatly extend the scope of your instrument.

Nearly all of the standard radio texts have details for the construction of RF probes, but generally they are of the single diode detector type (for example, see Refs. 1 and 2). Better sensitivity is obtained if we employ the two-diode voltage-doubler configuration (Ref. 3). A corresponding DC output voltage (for 10 Mohm DMM) is developed across a divider comprised of two 4.7 Mohm resistors. See Fig. 1. Using a pair of ordinary germanium diodes (hot-carrier/ Schottky diodes were found to be less sensitive than germanium in this application), sensitivity is good down to about 0.2 V/200 mV r.m.s. Readings are within +/-10 % of applied signal for sine-waves between 300 mV and 30 V, from 1 kHz to 50 MHz. Effective circuit loading capacitance is typically 4 pF. A probe using OA90 - 95 or 1N60 germanium diodes will have adequate accuracy for amateur purposes if made in accordance with the following details. With the addition of a suitable 50 ohm termination, the probe and DMM also finds use as a sensitive RF power meter for QRP work.

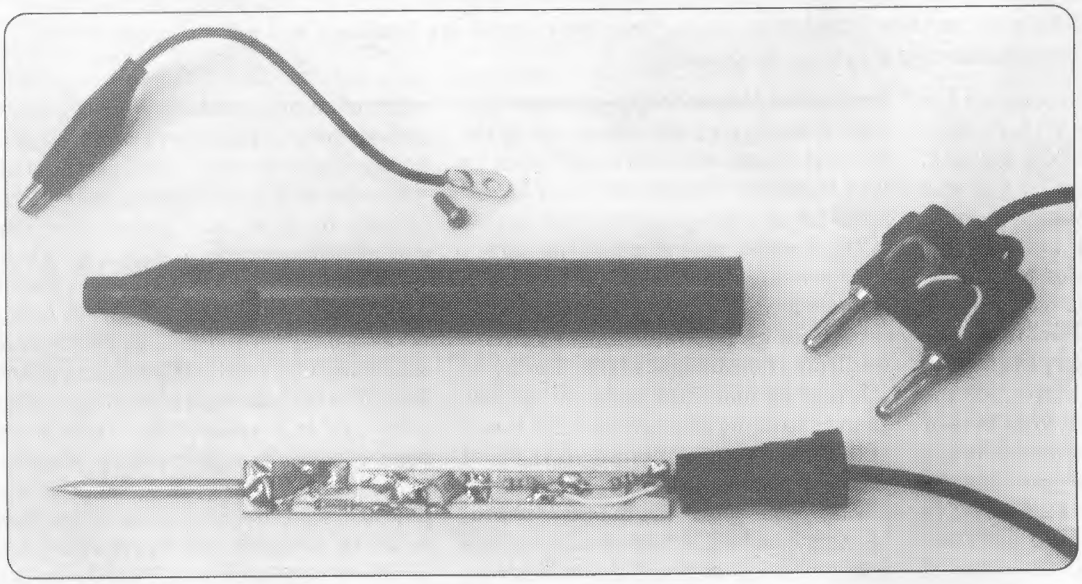


Photo 2: Probe components

Construction

For signal measurements in tight corners and upon compact circuitry, a fairly slim probe body is desired. The prototype is housed

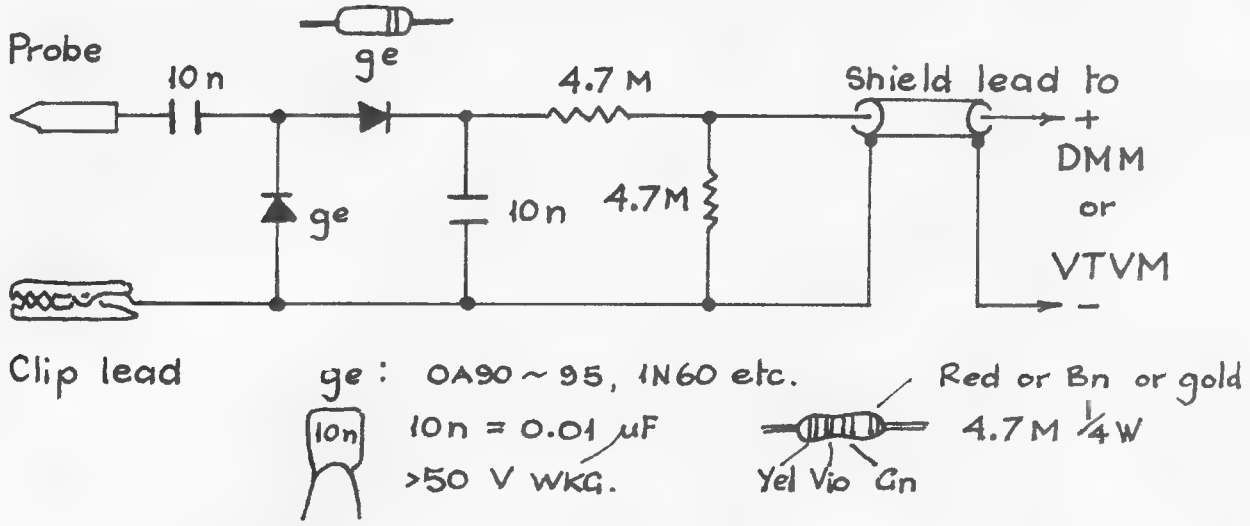


Fig. 1.

in a defunct plastic felt-tip pen barrel (see Ref. 4) which is almost ideal for our purpose. Obtain a dried-up felt-tip pen (preferably a plastic one, whose label may be removed). Carefully insert a knife blade into the join where the end-cap is fitted, then withdraw the cap (more like a snap-fit plug, or bung really). Remove and discard the ink pad and felt tip. Clean up any remaining ink with a tissue dipped in meths.

A narrow piece of double-sided circuit board which accommodates the detector

Continued on page 10

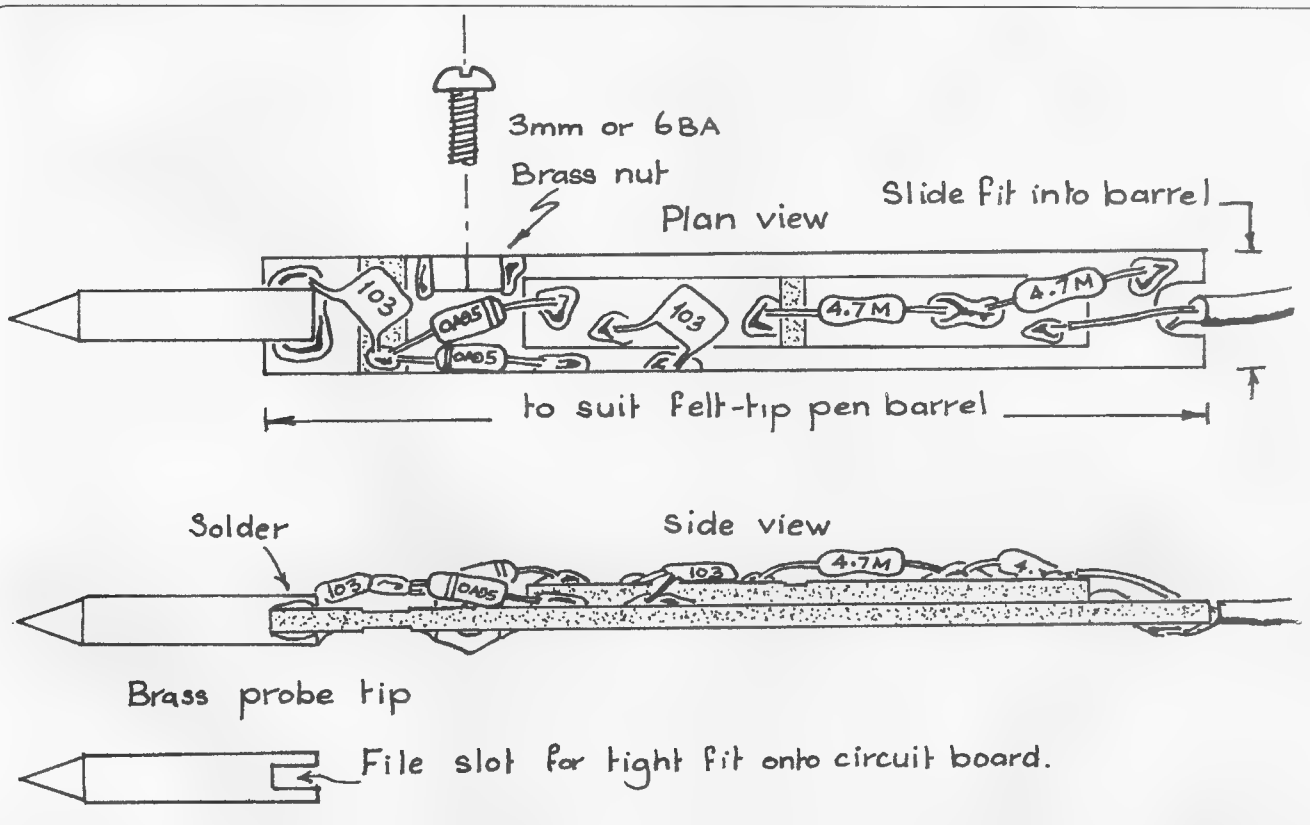
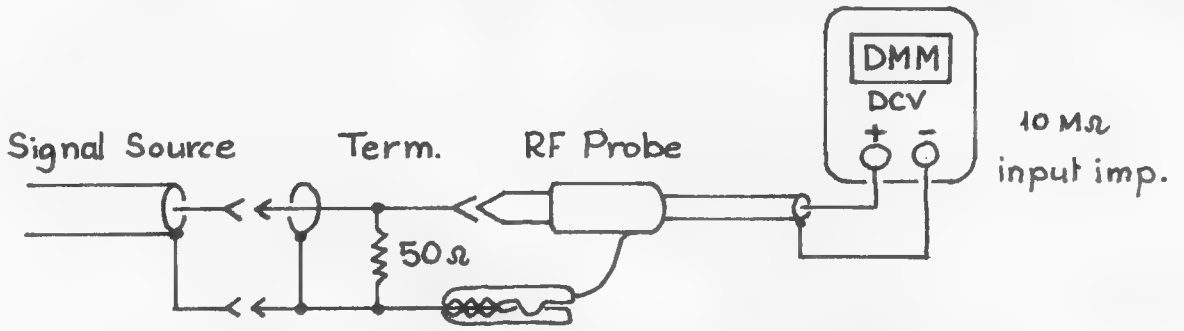


Fig 2.



Signal must be substantially pure sine-wave.

$$P = \frac{E^2}{R}$$

E_v	.22	.5	1	5	7	10	12	14	16
P_w	.001	.005	.02	.5	1	2	3	4	5

P in Watts (.001W = 1mW), E in Volts, R in ohms (typ. 50Ω).

Fig 3.

Continued from page 9

components shall be fitted into the barrel. Poke a rod or pencil into the barrel and gauge the internal length available (taking into account that which is required by the end-cap), then insert various drill shanks in order to measure the internal diameter. Make a circuit board of appropriate length and width. Test for sliding fit inside the barrel. Check that the end cap may be snapped home, thus securing the board in place. When satisfactory, file a semi-circular notch in the end of the board to allow the shield cable to easily enter a hole drilled in the end cap.

Board layout is shown in Fig. 2. File a notch in the side of the board near the probe end, into which is fitted and soldered a 3 mm or 6 BA hex brass nut as shown. A corresponding clearance hole must be drilled in the barrel to take a 3 mm or 6 BA brass screw, which acts as locating device, and chassis ground connection point, via solder tag, short stranded wire and flying clip-lead.

The probe tip should be made from brass rod, or from a length of suitably sized brass screw thread. Using an electric drill mounted in your vice as a "mini lathe", fix the brass rod in the chuck, then apply a smooth file to the rotating rod to form a point similar to that shown. With a flat needle file, form a slot at the blunt end to provide a good fit onto the board. Carefully remove, by filing, a 5 mm segment of copper foil (from both sides) about 8 mm from the end of the board. Align then "tack solder" in place. Test for proper alignment and straightness inside the barrel and adjust if necessary, then solder properly.

A strip of "paddyboard" with a single dividing cut accommodates most components. Super-glue this strip onto the board. To minimise loading capacitance, the connection between the probe coupling capacitor and diodes is made "ugly style". Take care soldering the capacitors, and especially the diodes- clamp fine long-nose pliers between joint and part when soldering these.

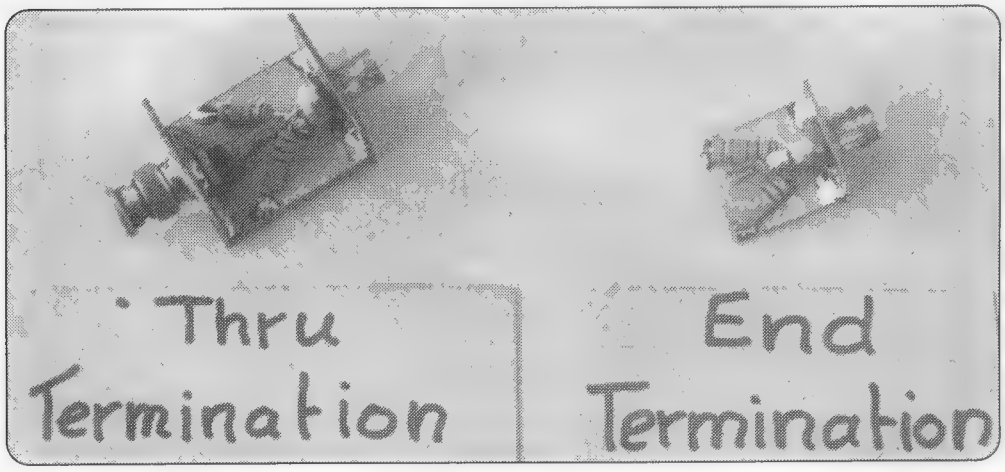


Photo 3: Terminations

Photo 3 shows two types of 50 ohm terminations for power measurements. These are made from scraps of double-sided circuit board. One is an end termination, the other a 'thru termination (for use with high-

impedance measuring devices, such as an oscilloscope). Use resistors of appropriate power rating for projected work. A pair of 100 ohm 2 W metal-film resistors (see Parts below) can take up to about 10 W in short bursts without damage. A lug from an Octal valve socket, soldered to the centre pin of the coax socket may be used to mate with the probe tip.

Operation

In use, the ground connection clip lead should be attached to the "earthy" side of the circuit under test, close to the point of voltage measurement. For best accuracy, the waveform should be reckoned to be a pretty clean sine-wave. Peaky or distorted wave-forms can give erroneous readings. Never-the-less, any kind of measurement is better than guesswork. For instance, to check that an oscillator is working- application of the probe will quickly determine if the circuit is functioning. Similarly, various parts of a low-power transmitter (or the low-power stages of a QRO transmitter) may be probed, checking for output from each stage, and so on.

A typical set-up for RF power measurement is depicted in Fig. 3, where a source requiring a 50 ohm load is assumed in this example. Apply carrier signal to the 50 ohm termination and measure the corresponding voltage developed across the termination. For a sine-wave, power in Watts equals the measured voltage squared divided by the load resistance in ohms. A table of typical values in QRP work is shown.

Parts

All components for the probe are available from our familiar electronic parts suppliers, such as Dick Smith, Jaycar and (for Melbournians) Electronics World, All Electronic Components and Rockby's. Rockby's and Electronic World have 1, 2 and 3 W metal-film resistors for the termination(s). If you have genuine difficulty in locating any of the parts specified, I always keep a few spares, so please write to me at the address shown, including an SASE for reply.

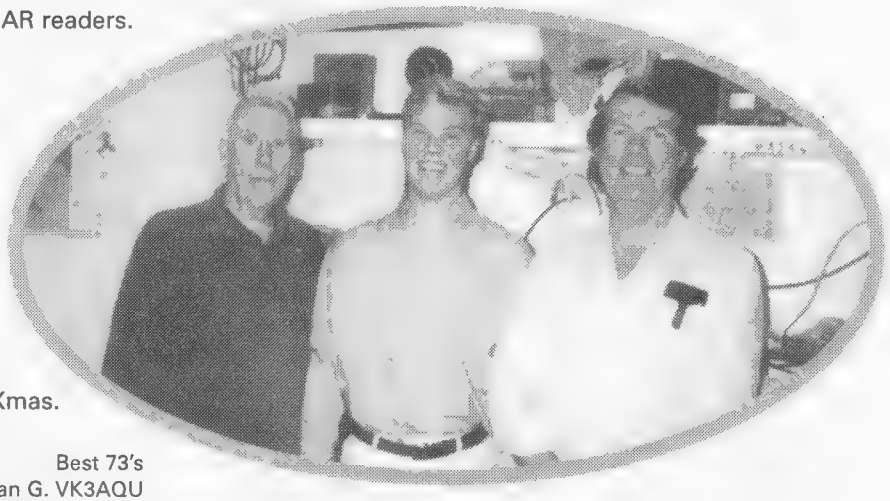
References and Further Reading

1. *Radio Frequency Probes*; Watson, G3JME, RadCom, April. 1972.
2. *Test Equipment for the Radio Amateur*; Smith, G4FZH (ed.), RSGB Publications.
3. *A Calibrated RF Detector Probe*; Dooley, VK5BGZ, Electronics Australia, March, 1995.
4. *RF Detector Probe for our Bench Amp"*; Evans, Electronics Australia, May 19988.

ar

Hams span three generations

I thought this photo may be of interest to AR readers.
It represents three
generations of Hams with my Father Neil
VK3AQD at the left, my son
Christopher VK3MNI in the centre and
myself VK3AQU at a gathering
celebrating Neil's 80th birthday.
He was first licenced in 1961 and has
been a WIA member I think for
nearly all of that time.
Christopher received his licence in April
this year and is working
towards full call theory hopefully before Xmas.
I was licenced in 1970.



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Ian G. VK3AQU
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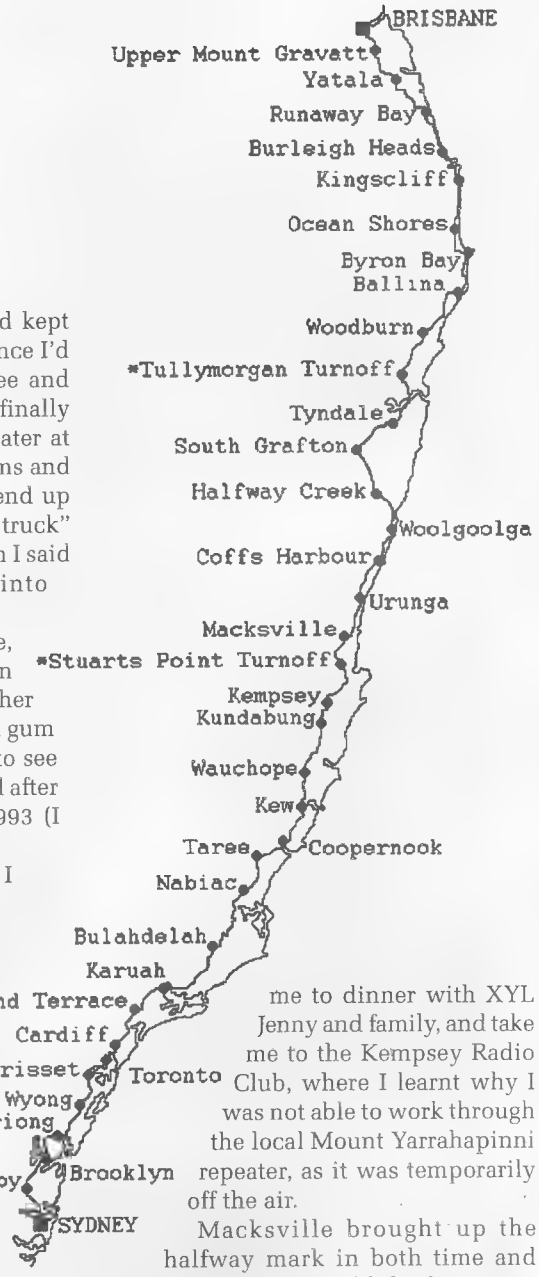
Walking 'On Air' from Sydney to Brisbane PART TWO

Tony Whitaker continues strolling the *ultimate stroll*



The Middle

Day 12 (Nabiac to Taree) and down came what I can only describe as continuous heavy rain interspersed with periods of very heavy rain, though I was spared the high winds that did some damage around Sydney Harbour. My poncho kept the pack reasonably dry and, more importantly, the C528 (which goes doolally if any water gets inside via the speaker/mic socket), so the sanity of 2STB was once again a topic of conversation as I squelched my way north.

Unfortunately, I didn't fare quite so well, nor did my little log book, so the motel room in Taree took on the atmosphere of a Turkish bath as I tried to dry things out in front of the air conditioner.

Although it had stopped raining, Day 13 nearly lived up to its unlucky reputation. John, VK2SWR, who I met at the north end of the Taree bypass, told me that, according to radio reports, the road was closed by flooding just south of my day's destination of Coopernook. It was, except to large vehicles and mad pedestrians willing to wade through 500m of cold, muddy, knee-high water, with all sorts of creepy-crawlies in and on it.

The thing that I found most disappointing was that my second single-use camera, which I'd just started, failed to work, so I couldn't get a picture of a large truck, with an impressive, white, foaming bow-wave, bearing down on me.

Colin, VK2AF, visited me a couple of days later as I set off from Kew, and the Westlakes baseball cap was superseded by a Port Macquarie one. He had kept me company nearly every day since I'd been able to access Cabbage Tree and would continue to do so until I finally dropped out of the Dorrigo repeater at Tyndale on Day 26, some 450+kms and 18 days later. "Mind you don't end up as a mascot on the front of a big truck" was a comment made to me when I said I was taking the Bago Road into Wauchope.

In reality, there was little chance, as the road was very quiet with an excellent day's walk in fine weather again through the still blackened gum tree forest. It was very pleasing to see how well the forest has recovered after the devastating bush fires of 1993 (I believe).

On reaching the town though, I was somewhat bemused by Australia's ability to close down on a Saturday afternoon, a sentiment shared with a German couple I met much later in Brisbane city centre, who were unsuccessfully trying to change their flight plans.

The next day (Day 16), I managed to overcome the first of the "gaps", when I found a motel at Kundabung, but there was no repeat for the following 52km section between Kempsey and Macksville. Fortunately, Grant, VK2MAX, had been appraised of the situation by Grahame (VK2FA), and he kindly provided the shuttle transport to the Stirling Point turnoff, as well as show me a little of the district, entertain me to dinner with XYL Jenny and family, and take me to the Kempsey Radio Club, where I learnt why I was not able to work through the local Mount Yarrahapinni repeater, as it was temporarily off the air.

Macksville brought up the halfway mark in both time and distance, so now I could think in terms of walking towards Brisbane rather than away from Sydney.

A couple of days later saw me being shown round Coffs Harbour by Ray, VK2BRG, and the next day (Day 22) walking through banana country up to Woolgoolga. I couldn't resist feeling a little smug satisfaction as I reached, then

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passed, a couple of the holiday complexes (Nautilus and Pelican), remembering the series of advertising boards I'd seen starting days ago and hundreds of kilometres down the road. I was also amused to see at the entrance, in large print, the starting price of a unit to be $95,000, but, in very much smaller print, with an average of $434,000! Arnold, VK2ADA, met me just past the entrance to Coffs Harbour Zoo in his large Land Cruiser, which had the appearance of a mobile porcupine due to all the aerials mounted on it.

Later, having established myself at the motel in "Woolly", as he showed me round the area, he did admit to having occasionally picked up the wrong microphone from the large array hanging under the front dash. The weather had taken a turn for the worse again, so the next two days were a case of sunshine and showers as I made my way up to South Grafton, where I met my namesake, VK2BTS, whose callsign, as was pointed out to me, is the reverse of my own.

The End

Day 25 and I ran out of range of the Dorrigo repeater, so I finally had to say farewell to Colin, VK2AF.

Day 26 was the last of the scheduled gaps and the arrangement for a taxi to pick me up from the Tullymorgan turnoff and take me back to Maclean fortunately worked very well. That night was a little different, in as much that there was a total eclipse of the moon, of which I saw just the first part, not because the sky wasn't clear, it was, but because I like my bed too much! I also missed the following total eclipse of the sun, two weeks later, the only total eclipse visible in the UK during the twentieth century, though I did have a better excuse - it was my last day in Oz.

The bananas had given way to sugar cane, but I only saw one small example of cane burning, as I was told that the height of the conflagration season had been severely disrupted by all the rain.

The only "off-road" section. Up the beach to Surfers Paradise

Indeed, talking to a council worker after crossing the bridge at Wardell, he told me that the annual rainfall for the area is 60 to 70 inches, but they'd already had 89.

The Parrots Nest repeater was good copy, though I had difficulty getting in sometimes with my low power, and the Byron Bay repeater was coming into range as I reached Ballina, where I had a very pleasant evening meal with Dennis, VK2RM, and XYL Norma.

Since the only motel in Bangalow had closed down, a change of plan was required, and this involved taking the coast road up to Byron Bay. No regrets though, as Day 29 was a beautiful day, with scenery to match and I even had the chance to access the Gold Coast repeater at Springbrook from Lennox Head before meeting Gordon, VK2AGE, and XYL Heather at his QTH in the village. I could have spent a lot more time there, but I had to press on to Byron Bay, which I found a little strange, possibly because of some of the strange looking people that were wandering round (so I wasn't the only one).

Day 30, a Sunday, and a chance to monitor the rather up-beat VK4WI news on Springbrook, as I made my way back to the Pacific Highway. Graham, VK2GJ, met me at the start of the Brunswick Heads bypass, having ridden out there from town on the XYL's bicycle. He did admit, however, that it was some thirty years since he'd used that particular

Journey's End at Upper Mount Gravatt

mode of transport.

The next day was my last full day in NSW, and I enjoyed the lovely sunny weather whilst walking up the coast to Kingscliff, past miles of beautiful, clean, but completely empty, sandy beaches, conditions, I suspect, that the tightly packed hoards of holiday-makers back home would have killed for. I hope Greg, VK2IGW, and XYL Rhoda didn't mind too much when I expressed a hope that

Continued on page 14

Continued from page 13

their circumstances would improve sufficiently for them to afford shoes - going barefoot seems to be the norm for a farm upbringing in these parts!

The crossing into VK4 was seamless and it took two more days to reach then pass those high-rise buildings at Surfers Paradise that seemed to emerge so strangely from the sea, when I first saw them from Coolangatta. I can see why the area is so popular, especially as a place to retire, if Jim, VK4GIM, a sprightly octogenarian, is anything to go by. I appreciated the evening at home with Jack, VK4YKG, XYL Gloria and "Pampered Pooch Penny", before tackling the nightmare roadworks of the Pacific Highway upgrade.

The reaction at the local Runaway Bay police station hadn't exactly been encouraging, when I'd asked for information. "Get a bus", was the first, followed by "Two roadworkers have already been killed". However, I did eventually make Yatala unscathed, though it was definitely the worst day's walk of the trip. One bright spot was talking to Brian, VK4BCF, who was in contact on 20m with ZL1DAQ. Don had acted as my "Mission Control" last year during the ZL North Island stroll, and has walked the length of New Zealand himself in 1992.

Day 35, and the walk to Upper Mount Gravatt was, by comparison, uneventful, and I had my first real view of the destination city from Edens Landing. I had always intended to finish at Mount Gravatt, as this was the location of one of the nearest motels to Steve at Griffith University.

However, I couldn't resist walking the final 14kms into the city centre, so, at about midday on Saturday the 7th of August 1999 I stood outside Brisbane City Hall, 36 days and some 1000kms after leaving Sydney. No fanfare, no crowds, just me, but that's how it's been at the end of each little stroll - after all, my name's not Ffyona Campbell or Ian Botham.

Epilogue

Although Steve showed me a little of the region, the majority of my last few days were spent as a busman's holiday in the University. Strangely though, I had no further contacts, despite putting a few calls out through the local repeaters from time to time. This contrasted to the 90 or so amateurs that I'd talked to and/or met on the way, with only two days, 19 and 36, without a QSO. John, ZL2WW, had expressed a wish that "... the VK boys (and girls) treated you well en-route" (as had happened in New Zealand), and I can certainly confirm that to be the case.

I would like to take this opportunity to thank everybody I spoke to, particularly those who went out of their way to keep me company during those long periods of pounding the tarmac - it certainly helped cover the miles. However, I'm especially grateful to those who showed me around their local area and often invited me into their homes or went out for an evening meal with me. It shows that the amateur spirit is still very much alive and well. Neither can I forget the individuals and groups who keep the repeaters up and running. Having set up three repeaters and two beacons myself, I can appreciate the effort that is required. Without them, my holiday would have been very much the poorer.

As to the future, I have no immediate plans, though I have had a preliminary look at Adelaide to Melbourne to Sydney. So, perhaps, just perhaps, I may return sometime as VK2 Silly Tony's Back.

[1] "73 ZL. A winter stroll the length of South Island." A.J.T. Whitaker G3RKL, Break-In, NZART, May & June 1998.

[2] "73 ZL - Again. Another winter's stroll: the length of North Island." A.J.T. Whitaker G3RKL, Break-In, NZART, July/August & November/December 1999.

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Itinerary

Walking Day	Destination	Estimated Daily Distance (km)	Distance From Start(km)
0	Sydney	0	0
1	Hornsby	25	25
2	Brooklyn	23	48
3	Kariong	32	80
4	Wyong	26	106
5	Morisset	26	132
6	Toronto	18	150
7	Cardiff	15	165
8	Raymond Terrace	26	191
9	Karuah	25	216
10	Bulahdelah	44	260
11	Nabiac	45	305
12	Taree	28	333
13	Coopernook	24	357
14	Kew	31	388
15	Wauchope	21	409
16	Kundabung	35	444
17	Kempsey	16	460
18	*Stirling Point Turnoff	29	489
19	Macksville	22	511
20	Urunga	32	543
21	Coffs Harbour	29	572
22	Woolgoolga	25	597
23	Halfway Creek	25	622
24	South Grafton	29	651
25	Tyndale	31	682
26	*Tullymorgan Turnoff	35	717
27	Woodburn	32	749
28	Ballina	35	784
29	Byron Bay	30	814
30	Ocean Shores	21	835
31	Kingscliff	37	872
32	Burleigh Heads	25	897
33	Runaway Bay	22	919
34	Yatala	35	954
35	Upper Mount Gravatt	30	984
36	Brisbane	14	998

* indicates a pick-up point

ALARA

Christine Taylor VK5CTY, ALARA Publicity Officer
16 Fairmont Avenue, Black Forest SA 5003
Packet VK5@VK5TTY Email: geensee@picknowl.com.au

Congratulations are in order

Thelma Souper Waro 2000 VK-YL Winner

Not just this year, but for the fourth year in a row Gwen VK3DYL has won the VK-YL section of the Thelma Souper WARO 2000 Contest. Well done, Gwen, but Gwen says she wants some more competition so why not have a go next year?

This is a contest held over a weekend early in April. It runs for 3 hours (7.00 to 10.00 UTC) on each of two nights but it is only for contacts on 80 metres. You may use phone or CW so why not make an effort to brush up your CW in time for the contest. As a YL you may contact either other YLs or OMs and there are random appearances of the station callsign ZL2YL thoughout the duration of the Contest. Contacts with this station earn a multiplier.

If you are a WARO member you can also earn a multiplier each night by making at least 20 contacts with other WARO members. This is an interesting contest and one in which it should be possible to earn a good score especially in the next few years as the sunspot cycle reaches a maximum.

Why not have a go.

Honorary Life Membership

In recognition of her invaluable service as Treasurer for the last ten years and supporter of her OM Graham VK4BGC (who recently became a silent key) at all times, but especially including his time as Secretary, Bev VK4NBC was awarded an Honorary Life Membership of AFARN (Air Forces Amateur Radio Net).

Bev and Graham played an important part in keeping the "Queensland Connection" of this group alive and well. Bev and Graham have been regular participants in all the AFARN activities and with so many friends among the members we are sure Bev will keep her interest in their nets and projects very much alive.

Recently TouringYLs

Mary VK3FMC and OM Dick VK3LDC had a lovely few weeks touring VK7 land. Did you speak top them at all? At round about the same time Val VK4VR and OM Brian VK4RX were also in VK7 land. Maybe you spoke to them instead?

We know that Val and Brian renewed their friendship with Marilyn VK3DMS and Geoff VK3ACZ in Mildura. Another visitor to the new home of Marilyn and Geoff was Elwyn VK2DLT also with her OM but they were heading for VK5 land. They had a great time touring the York Peninsular, where they met friends by arrangement. Your reporter has to say that she didn't manage to make contact with Elwyn but has the excuse that she didn't come closer to Adelaide than Port Augusta.

By a very strange set of coincidences, on the Friday of the luncheon meeting of the VK5 girls in Adelaide, there were two VK3 Yls in Adelaide. We knew in advance that the visitors had schedules that did not permit them to join the luncheon but we actually passed each other "like ships in the night".

As I was making my way up from the railway station I passed a couple heading in the opposite direction as we all crossed King William Street. As I reached the other side I realised that I had "met" Jean Shaw and her OM, Mac. On the Monday night Net next, Robyn VK3WX asked Meg VK5YG if she had been at a particular place at a particular time last Friday? Yes, they had also "met" as they crossed.

Adelaide (and Australia) is a small place, in many ways.

If you are a regular listener to the Travellers' Net you will know that there are always people you know touring. If you are travelling, put out a call when you come into a new town, there is often someone listening. If you are at home and hear a strange callsign, reply to it. Make a new friend. Enjoy one of the special benefits of our wonderful hobby.

Put this in your plan-ahead diary

Be prepared to listen out for AX9YL in the latter part of September. There is to be a mini-DXepedition to Norfolk Island following on from the YL2000 International Meet in Hamilton. It will be a multi-national group the details of which are still to be arranged.

Full details will be in this column in the next edition but this will give you a little extra time to arrange you life so you can listen out for this station.

There are not very many amateurs on Norfolk Island so this will be a special opportunity. Keep your eye on this spot.

The AX Callsign and CW Changes

Let us have a good representation of YL operators using the "AX" prefix this year to celebrate our Olympic year. It is only for special occasions we are granted the use of the AX prefix so make sure we show that we appreciate it by using it. This callsign always brings renewed interest in Australia so make the most of it.

Novice operators (especially YLs) keep your eyes peeled for the promised variation in the CW speed requirements so you will be able to use those HF bands from which you have been excluded up till now. ENJOY!

Remember the Sydney Gold - The Gathering of the Nations Award

For details see ad in *Amateur Radio*, May 2000, page 17, or if you need further information please write to

John VK2DEJ
VKDX Association
P 0 Box 299
RYDE NSW 2112
or phone (02) 9809 5686

CLUB NEWS

Summerland Amateur Radio club (Inc.)

Another year has flown by and our annual Radio and Electronic HAMFEST is almost upon us ! Members are busily sorting out their goodies to decide just what they can try to sell , or swap.
SUNDAY , 27th., AUGUST, at the Club-rooms, 412 Richmond Hill Road, Goonellabah, via LISMORE, is the date and the place to remember.
A couple of prominent retailers have expressed an interest in attending and there will be plenty of space and tables for 'slightly used' equipment. Refreshments , BBQ plus 'give-aways' will be on offer as well.

Make a day of it, catch up with some of your old 'on-the-air' friends.

This year the club has successfully re-introduced Construction Days and Tune-up Days .

These have been well attended .

A new idea we are trying out is proving quite popular, C.B. Nets. Weekly nets are being conducted on both the H.F. and the U.H.F. Citizen Band channels. These are attracting around 12 - 15 participants regularly.

The two year saga of moving the Byron Bay repeater is slowly fighting it's way through the paper work , there is hope that it might actually happen in September (this year).

The attached photograph is of our WICEN Communications van , partly obscured by the 25 folk who took part in a recent training exercise. . Map Reading and Message Handling were the order of the day.

All voted that the day was well worth the effort, we learnt a lot, but needed more practice in message handling, (Transmission and Reception)

Another exercise is already in the planning stages.

Amateur Radio Theory classes are held regularly , in the Club-rooms, and we have had a few successful candidates lately.

Hope to see most of you at the Hamfest.

Graeme Virtue, VK2GV,
Publicity Officer.

Just a little Light Entertainment

Well, yesterday was the day... We've been waiting for a fine Saturday arvo when we were not busy doing something else.

This was it, Time to helio from Parrot's Nest to Rob Gallagher VK2KGK 's QTH on Hogarth Range. The line of sight (LOS) distance is about 45 km (about 34 miles) west from Parrots Nest. We went up and set up about 1330 hrs so the sun was most favourable to signal west. Unfortunately smoke haze meant we could not actually see Rob's place.

Using bearings we had previously worked out and some test flashing Rob was soon able to see our signals. Rob did not have helio gear and coordination was done by 2m. radio. The quickest contact was made by Leith Martin VK2EA using the hand mirror like those supplied and practiced in survival kits. This was quick and gave confirmation of our aiming direction. It is difficult to send actual traffic this way however. We had two Helios set up. One is a standard Army 5 inch Mk.V Heliograph. The other is a 22 inch (55cm) helio I constructed. (Heliomax). Both worked fine. The flash from the large mirror was brighter than the Mk V but both were easily seen and readable. We spent some time checking bearings, alignment techniques and adjusting for the movement of the sun. We sent short signals to prove adjustments and keep Rob occupied. Having proved the exercise, we packed up and left about 1500 hrs. We discovered too late that Sam MQS owns a Mk V Helio. Next job will be to set it up at Rob's end and send both ways. Some other fine Saturday. Hihi. Below is a pic from the day. Leith EA handsignalling.

Adelaide Hills Amateur Radio Society

The May meeting of the AHARS was a presentation of the video taken by Greg VK5ZBD at the "Evening with Andy Thomas", last year. For those that were at that gathering it brought back pleasant memories, for those that were not able to be there it was all new and interesting. There is no question but that the digital TV techniques now available help to produce marvellous pictures.

We were fortunate to have the use of a big screen video projector from the school where we hold our meetings so everyone had a perfect view. Our thanks to Greg for the presentation and for the excellent editing he did to make the finished product.

Three country radio clubs are now receiving videos of our meetings on a round robin system. In this way some of our country amateurs are able to see and hear lectures they would otherwise miss out on.

The next meeting of the club will be in the form of the Mid year Dinner. While visitors to Adelaide are always welcome to our meetings they should be aware that the December and July meetings are always dinners though visitors are welcome to those also.

If you are visiting in other months our normal meeting night is on the third Thursday of each month, starting at 7.30 and the venue is the Blackwood High School in Seymour Avenue, Blackwood.

Coral Coast Group

The Coral Coast group has been running for since 28th September 1967, non stop 7 days a week at 21.00hrs GMT on 7.060MHz. The founder Net Controller and mentor of the group is Les Bell MBE(MLY) VK4LZ Arlie Beach Les will be 97 next January.

The Group has now made available a Coffee mug commerating the Group. The mug has a photograph of Les, the names of the members of the group and their call signs. The mug is available in four colours. There are 36 mugs available so it will be first in best dressed. A life story of Les Bell is being prepared and will be published shortly.

All inquiries to Leslie E. Daniels A.M.I.E.T., M.W.I.A. VK2 AXZ. 9 Highfield Terrace, Cardiff Heights, NSW 2285. Tel (02) 4954 0893.

Redcliffe and Districts Radio Club Inc.

President: John Presotto VK4WX 1st Vice Pres: Charlie Strong VK4YZ 2nd Vice Pres: John Maudsley VK4YJV Secretary: Stephen Harris VK4HRS Treasurer: Don Laing

Media Liaison: Kevin Jones VK4AKI - kevjon@bit.net.au

Meetings: EVERY MONDAY with regular guest speakers and ongoing projects. Time: 19:30hrs (Local)

WHERE: Club Premises (Ex Kippa-Ring Guide Hall) - Cnr Klingner Road & MacFarlane Street, Kippa-Ring

Meeting Rooms: Open every Monday evening 19:30hrs (Local) INCLUDING PUBLIC HOLIDAYS

2nd Monday of each month TRADE TABLE "buy swap sell".

Exams: Nominations for all classes of exams contact. Laurie VK4BLE on 07 3284 8859. Exams any time on two week notice.

CLUB NETS: Sunday Evenings at 1900K 2m on 146.925 Redcliffe repeater VK4RRC and 1930K 80m 3.612 +/- QRM VK4RC Net control Tuesday Evening 2000K on UHF repeater 438.325 This is our club's "Technical help net".

REDCLIFFE and DISTRICTS RADIO CLUB Inc.

PO Box 20, WOODY POINT. QLD 4019

URL: http://www.qsl.net/vk4iz/

EXAMS: Laurie VK4BLE

NET_1: SUN 1900K 146.925 MHz
NET_2: SUN 1930K 3.612 MHz
REPEATERS: VK4RRC 146.925 MHz
VK4RRC 438.325 MHz

SILENT KEY

Richard Soulie VK2ARS

Richard Soulie VK2ARS passed away about 11pm on Tuesday Night 13th June 2000 after suffering a massive heart attack in hospital. Richard was 55.

Born in Islington England on 30th July 1944. In 1953, Richard, then aged 9, arrived in Australia with his family. On 18th November 1967 Richard married Pat. In 1994 (6years ago) Richard went into hospital to have a Quadruple Bypass, but just after they started they found he only needed a Triple Bypass. One valve was ok.

In 1964 Richard obtained his first Amateur Radio licence VK2ZLF. In 1965 he changed to VK2ZRX. 1968 changed again, to VK2ZSY. 1980 yet another callsign change to VK2YQN. Then in April 1991 Richard obtained his 10wpm CW and his last callsign VK2ARS. Richard was a true amateur. He used the phonetics of "Amateur Radio Station" and that definitely described him. He loved home brewing and restoring old transceivers and was always on the lookout at field days for useful bits and pieces. Richard was a member of the UHF/VHF DX Group also the St George Amateur Radio Club. You could hear Richard's happy voice during the working week days on 146.800 MHz and on other bands nights and weekends. He will be missed by all who listened and talked to him over many, many years.

His wife Pat said "Richard loved working with electronics and radios, also talking about electronics to everyone on and off the radio, but he always had plenty of time for his family!" During his working life Richard worked at a few places such as OTC, Mitsui, AWA, Philips (where he managed the NATA Calibration Lab) and BlueGum.

Richard made many new friends where ever he went. He always retained all his old friends. If you ever had a problem with your equipment Richard always had time to help you on or off radio. He would go to amateur Radio/Television clubs in and out of Sydney to give lectures about electronics and the equipment he thought you should have in your shack. His knowledge was endless and so was his help.

Richard leaves behind his wife Pat, his 4 sons Mark, Sean, Simon, Luke and 1 Daughter Kylie.

Thank you Richard for all your help and support throughout the years, you will be missed so much by family, friends and acquaintances. The world of Amateur Radio has lost a great asset.

May you rest in peace my friend - Vale Richard, VK2ARS

Advised by Wayne Bradwell VK2TBF and Chuck VK2SS

TECHNICAL ABSTRACTS

Gil Sones VK3AUI
30 Moore Street, Box Hill South Vic 3128

Crossed Field Antenna

The Crossed Field Antenna (CFA) is an interesting antenna development which is the subject of a lot of interest and discussion.

It was originally described in March 1989 in Electronics and Wireless World with a subsequent article in December 1992. The authors and developers were F M Kabbary , M C Hately , and B G Stewart. A US patent has been taken out on the design. A number of antennas are in service in Egypt on the broadcast band. Papers have been presented at the IEE International Broadcasting Conference Amsterdam September 1997 and at NAB99. The antenna design offers a small size antenna for broadcasting and may be of interest as a compact HF amateur antenna. The initial work was carried out on the amateur bands.

An article describing a CFA appeared in the October 1999 issue of Radioamatoori describing the construction of a CFA by Heikki Antman OH2BGC. The article has not been translated but the diagrams offer sufficient information for construction.

The CFA produces Electric ,E, and Magnetic ,H, fields from separate parts of the antenna. The fields are synthesised to be in time phase in the "near field".

The E field is produced by the upper cylinder or E plate and the H field is produced by the D plate which is located between the E plate and the Ground Plane. Both work against a ground plane which is smaller than for a conventional antenna.

The D plate voltage is 90 degrees phase advanced from the E plate voltage. The phasing unit provides the phase difference and also controls the voltage on the plates so that the wave impedance ZW matches the space impedance Z which is 377 Ohms.

The CFA is shown in Fig 1. The ground plane is 1 metre by 1 metre and is hexagonal. The distance between the flats would be 1 metre. The hole in the middle would be 50 - 60 mm in diameter and is needed to allow the feed to come from the phasing unit beneath the ground plane to the E cylinder and the D plate. The plate could be foil on a support plastic sheet if desired for use at amateur power levels. The E plate is 400 mm in diameter with a central hole of 60 mm diameter. The E plate is mounted on insulated standoffs 100 mm above the ground plane. The D cylinder is 200 mm in diameter and 250 mm long. It is mounted 100 mm above the E plate. The whole CFA is thus 450 mm high with the phasing unit and ATU for matching mounted beneath the ground

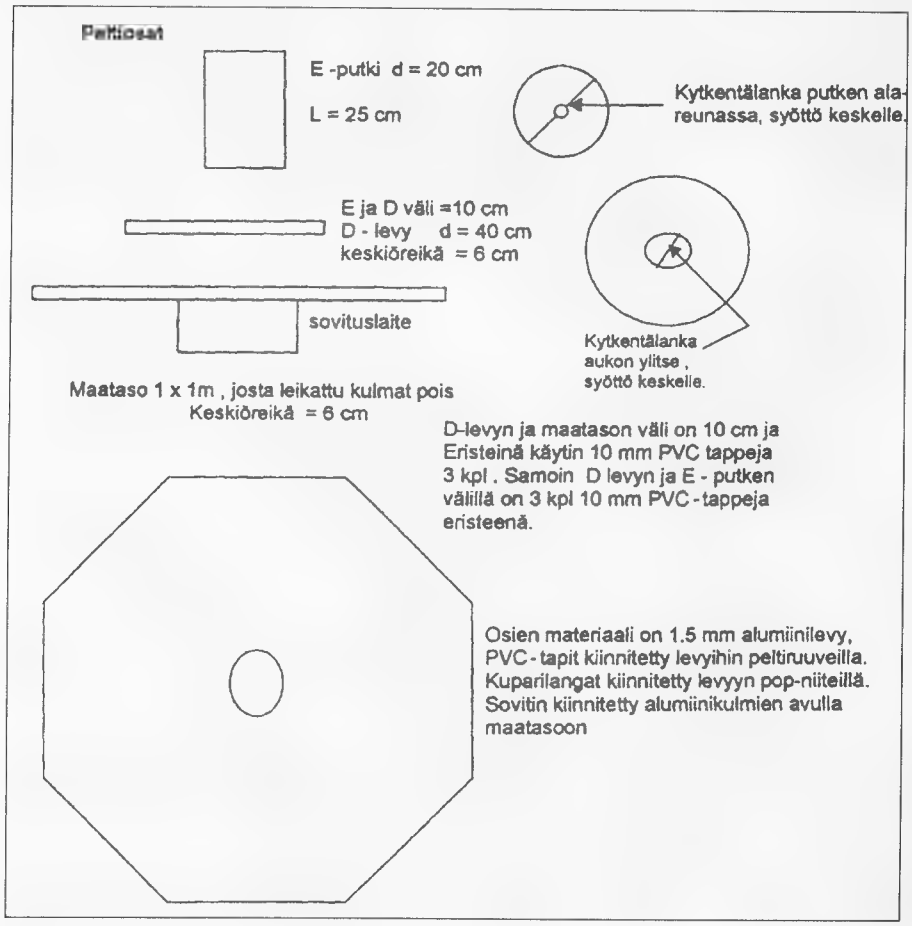

Peltiosat
E -putki d = 20 cm
L = 25 cm
Kytkentälanka putken ala-reunassa, syöttö keskelle.
E ja D väli =10 cm
D - levy d = 40 cm
keskiöreikä = 6 cm
sovituslaite
Kytkentälanka aukon ylitse , syöttö keskelle.
Maataso 1 x 1m , josta leikattu kulmat pois
Keskiöreikä = 6 cm
D-levyn ja maatason väli on 10 cm ja Eristeinä käytin 10 mm PVC tappeja 3 kpl . Samoin D levyn ja E - putken välillä on 3 kpl 10 mm PVC - tappeja eristeenä.
Osien materiaali on 1.5 mm alumiinilevy, PVC - tapit kiinnitetty levyihin peltiruuveilla. Kuparilangat kiinnitetty levyyn pop-niiteillä. Sovitin kiinnitetty alumiinikulmien avulla maatasoon

Fig 1. CFA Antenna construction.

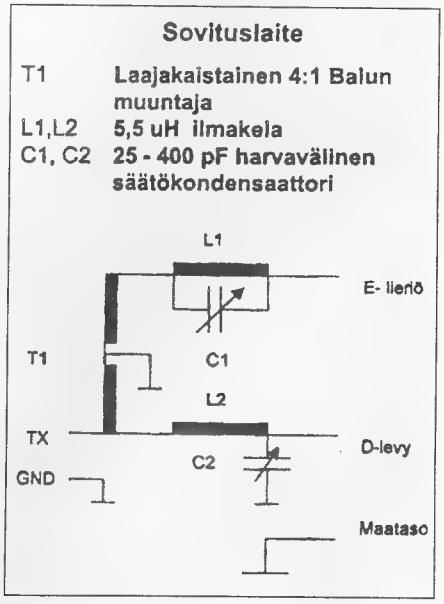


Fig 2. Phasing Unit for CFA.

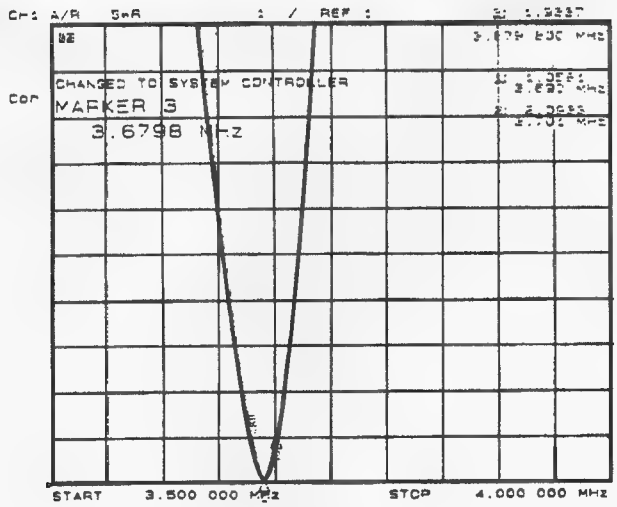


Fig 3. 80 metre SWR Curve

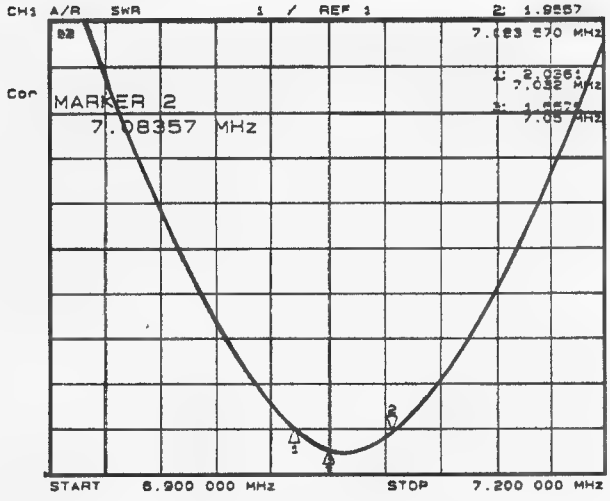


Fig 4. 40 metre SWR Curve

plane. The whole antenna can be mounted on the ground or a couple of metres above the ground. The Broadcast CFA's in Egypt are mounted above the transmitter building in one case. The phasing unit is shown in Fig 2.

The phasing unit in Fig 2 consists of a 4:1 Balun, two 5.5 microHenry inductors and two 25 to 400 pF variable capacitors.

Adjustment would appear to consist of getting the correct phasing and voltage relationship on the E and D plates. The resulting impedance would then be matched to the transmitter by the ATU which in this case was given as an AEA AT300. A field strength meter was also mentioned and it would appear to assist in tuning as the correct phasing and voltage point is approached. Figs 3,4,&5 show the SWR curves obtained on 80 , 40, and 20 metres.

There has been considerable discussion about the CFA which can be accessed on the internet at http://www.antennex.com and also on other sites. In addition to the developers there has been some input from Jack Belrose VE2CV who has conducted some of his own tests and Professor David Jefferies of Somerset University Surrey UK. It is an interesting antenna and the CFA has generated much interest and discussion.

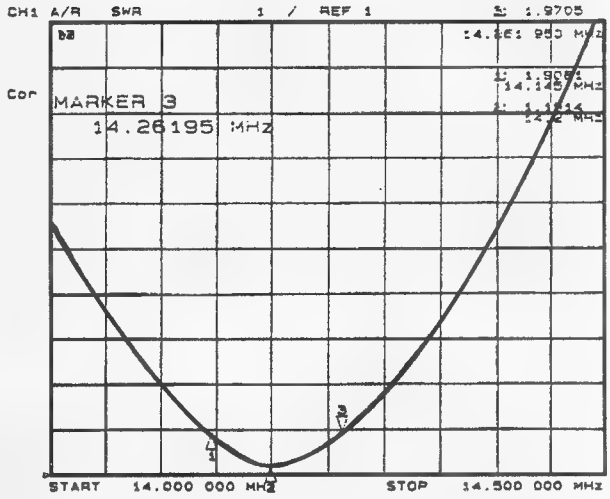


Fig 5. 20 metre SWR Curve

Offset Fed Wire Element Beam

An interesting offset feed for a wire element beam antenna was described in QST October 1999 by Robert K Zimmerman NP4B.

This involves feeding the driven element between the centre of the driven element and the element tip. The feedpoint is picked so as to match the coaxial cable impedance of 50 Ohms. The centre of the driven element would require a match to 13.3 Ohms in the beam described but the offset feedpoint allows a 50 Ohm match.

The three element beam is shown in Fig 6. The dimensions are given both for bare elements, no jacket, and for

Continued on page 20

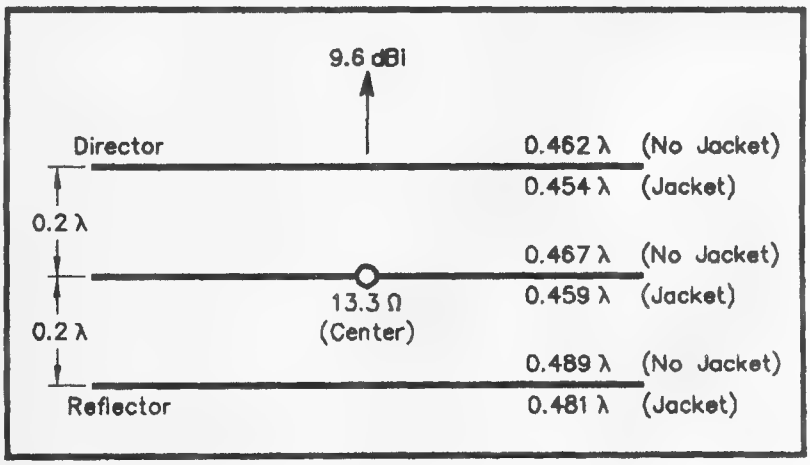


Fig 6. Three Element Wire Beam

Continued from page 19

elements made out of RG8X coax , with jacket. The feedpoint impedance at the centre of the driven element is 13.3 Ohms. The calculated gain is 9.6 dBi which is just under 7.5 dB gain over a dipole.

The construction of the offset feed driven element is shown in Fig 7. This is for construction from coaxial cable such as RG8X.

The antenna is shown in Fig 8. with dimensions shown in Table 1. The dimensions in Table 1 are for elements of bare #12 wire and a driven element made of RG8X coaxial cable as shown in Fig 7.

For VHF use the elements can be supported in PVC pipe (conduit) but will need to be shortened by 3% to allow for the effect of the pipe. At HF the beam can be suspended as a fixed wire beam.

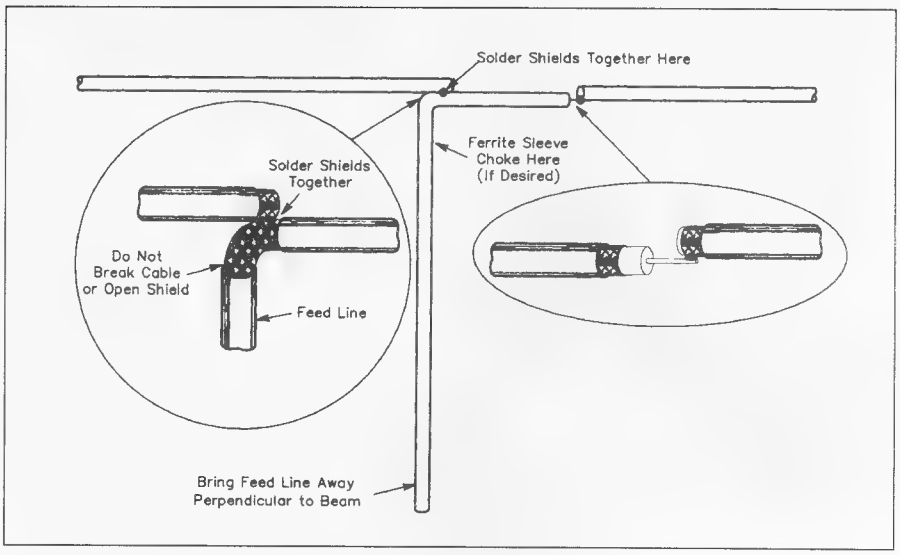

Solder Shields Together Here
Ferrite Sleeve Choke Here (If Desired)
Solder Shields Together
Do Not Break Cable or Open Shield
Feed Line
Bring Feed Line Away Perpendicular to Beam

Fig 7. Driven Element Constructed from RG8X.

Table 1.

Frequency MHz	A	B	C	D	E	F
10.125	13.69	6.79	4.44	2.34	14.49	5.93
14.150	9.8	4.86	3.18	1.67	10.37	4.24
18.110	7.65	3.79	2.48	1.31	8.10	3.31
21.200	6.54	3.24	2.12	1.12	6.92	2.83
24.930	5.56	2.76	1.81	0.95	5.88	2.41
28.500	4.86	2.41	1.58	0.83	5.15	2.11
50.200	2.76	1.37	0.90	0.47	2.92	1.20

All Dimensions are in metres.

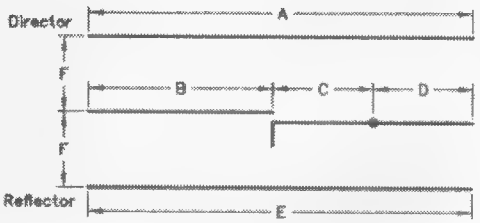


Fig 8. Three Element Beam

SILENT KEY

John Craddy
VK2BOK

John Craddy was born in England and served in the R.A.F. during World War II. He was a licenced amateur radio operator and worked in Government Radio in Scotland before coming to Australia in 1958. He lived in Melbourne and worked for the Australian Broadcasting Commission. He later moved to Sydney with the Australian Broadcasting Commission. He was an active amateur radio operator both in phone and c.w.

He did not enjoy good health over the last few years and died in Westmead Hospital on the 21st June last.

He was a very jovial character and made many friends both inside and outside the amateur fraternity.

He was always willing to help a fellow amateur with technical advice and where possible with practical help which was generously given.

He will be sadly missed.

Hilary Chapman VK2BHC

George Craggs
VK2AYG

George had been a regular on the "KESTREL" net on 3.600 MHz for many years. Although 84 years of age he was always a pleasure to join on the net each night, his sense of humour and patience in running the net was welcomed by all who listened in. George suffered a heart attack earlier this year and passed away on Sunday the 11th June.

On behalf of all the members of the "KESTREL" net we would like to pass on our sympathy to his wife Doreen and family. George would close the net each evening with the following prayer.

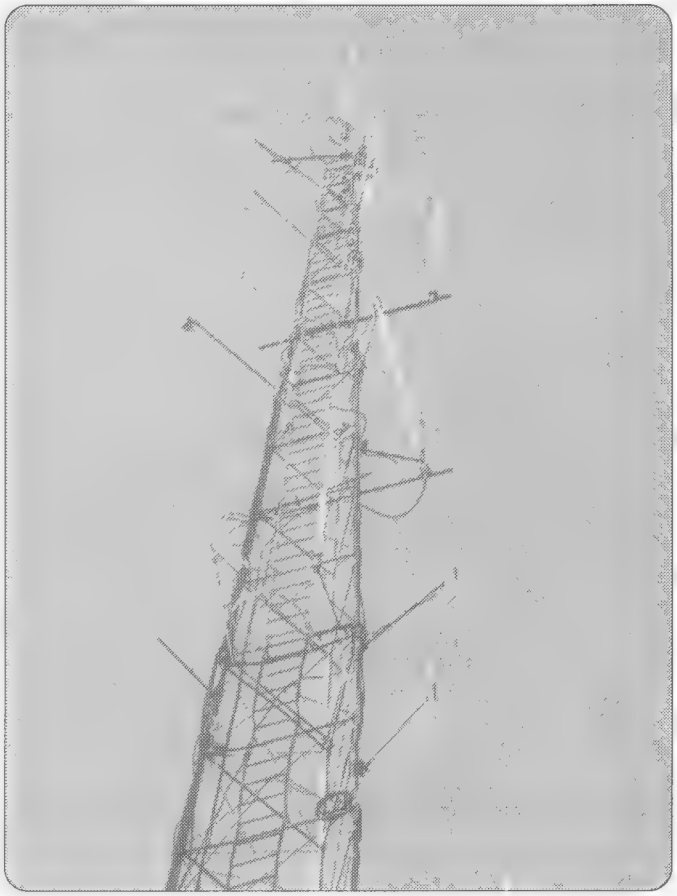
May the road rise to meet you
May the wind be always at your back
May the sun shine warmly on your face
May the rain fall gently on your fields
And until we meet again
May God hold you in the palm of his His hand
Good night from George 4AYG

Les Morrison VK4BAF

30 Years of Service

All callsigns VK5RAD
Refer also to the VHF/UHF Notes in July

These photographs show the repeater antenna tower and the main rack of equipment.

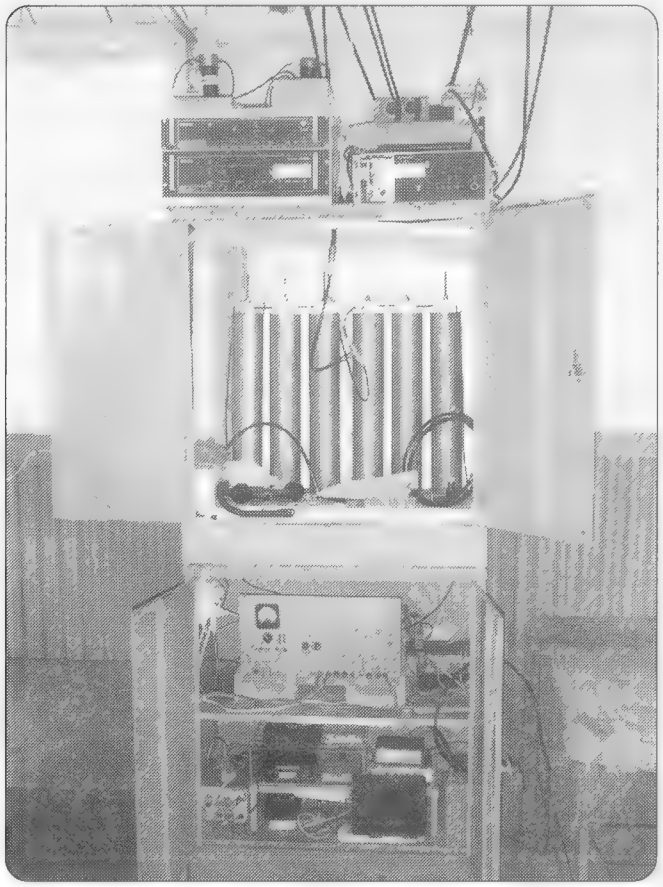


The rack equipment is

- Top left 53.775 MHz Repeater, Top right 438.525 MHz Repeater,
- Top Cabinet 147.00 MHz repeater cavities,
- Top of bottom cabinet Original 147.000 MHz Repeater

The equipment on the bottom shelf consist of the packet equipment that operates as the VK5RAD rose switch. The user port is on 144.925MHz at 1200 baud with a modified FM92 remote unit (without its remote head) connected to a TNC2 rose switch and diode matrix.

The UHF backbone radio is a Motorola M120 radio on 420.100 at 4800 baud also feeding a TNC2 rose switch and then into the diode matrix. The backbone radio is directly linked to the central Adelaide BBS - VK5SPG and to the mid north rose switch VK5RLH.



The TNC units and remote reset control unit run from a float charged gel cell power supply to reduce corruption of the TNC RAM information with power bumps and the radios run directly from a 15 amp 12 volt supply.

"It's a collapsible yagi I've developed for working portable."

Source: *CQ*, September, 1968

REPEATER LINK

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@omen.net.au
VK6UU@VK6BBR

828 Circuit

The trusty Philips FM828 probably still is the most popular basic radio for two metre voice repeaters in Australia. They have proved to be reliable and don't have the large current supply requirements that many newer synthesised FM radio require. Simple to set up with out the need for E-Prom programming etc. I have the circuit for the most popular version, the mark 2, on computer, drawn using the CAD program Draft Choice, which is available if you so wish. These circuits were printed in Amateur Radio magazine a few years back. However many amateurs either have asked for the circuit in its original form, as a FAX or photocopy. This is not always easy to do, as the circuit is rather large being almost a metre long by a third of a metre wide. Using a scanner, I have been able to scan the circuit onto computer and save the file in GIF format at a reasonable file size. The exercise was an interesting one in solving a number of problems and as such I hope will make for interesting reading.

Size

The first problem was how to scan the circuit, that is a least three times larger than my A4 scanner. The solution was to scan the circuit in three separate scans and join them together using a graphics program on the computer. I used Paint Shop Pro, a great, easy to use, graphic program that allows the three separate parts of the circuit to be joined together. This is done by taking the first drawing file on the computer and increasing the canvas size of the circuit drawing window. As the three circuits were able to be scanned in correctly height wise it was only required to increase the canvas size horizontally. What you end up with is the left-hand part of the circuit in a drawing window on the far left, with lots of empty white space to the right of circuit one. In effect blank space to the right of the first part of the circuit in which to import the other two drawings.

Joining

With circuit one on the computer screen at the increased canvas size, circuit two is opened and from the edit menu, copy is selected. Then by selecting the circuit one window (making it active) edit paste is used to import circuit two into circuit one. Circuit two imports as a movable picture that can be accurately joined to circuit one. During the scanning process, each circuit was over scanned a little to allow for this joining process. Depending on how zoomed in you are on the circuit during the joining process, very accurate seamless joining is possible between the two circuits. The process is repeated with the third circuit.

All in One

The finished result is all three circuits joined together to make up the original full-length circuit. The canvas size is then cropped to tidy up the drawing size. You always require a larger canvas size to allow for fiddling. The finished result looked good. It requires you to zoom into the part of the circuit you want to read on the computer, but this is easy and also allows moving the circuit once zoomed into, to the right or left with the mouse. The circuit can also now be printed out to what ever size you require, or if you have an A4 printer, three pages printed and the pages stuck together to reproduce the original full size circuit.

File Size

One difficult part of the process was to achieve the best quality scan that captured the detail of the somewhat aging circuit copy I had, while keeping the computer file size as small as possible. A circuit of this size, scanned at sufficient resolution, results in a very big file. From my first attempts, the file size was several megabytes. I wanted the resulting file to fit on a 1.4 Meg floppy, and preferably less than half a Meg for easy E-mailing. This proved to be an interesting process and worth passing on some of what I learnt. I already have a fair knowledge of graphic files so I knew some of the tricks.

D.P.I.

D.P.I. stands for dots per inch. This is set during the original scanning process. Scanners can be set, via the computer interface software, to scan at different D.P.I.'s depending on how much detail you want retained. After much trial and error 300 dpi was required to capture the detail in the FM828 circuit. Less dpi made already aging circuit values difficult to read. However, the file size was excessively large.

Number of bits

The circuit was reduced to a black and white file. Sure the original drawing was in black and white but up to this point, due to the generally poor quality of the original, I did not think black and white would capture the circuit well enough but it did. When I say black and white, it means just that, the scanner, via the software makes a decision on what it scans to be either black or white. Grey is either black or white. This could mean that any faint Grey parts of the circuit could come out as white and be lost. However, the results were good. Black and white is a 2-bit file, meaning either a one or a zero to represent black or white. Grey scale is a 7-bit file, which can reproduce 256 shades of Grey. The more bits to make up a byte means more definition, or steps of Grey (or colour), but a larger file size. Modern computers use 16 bit or 24 bit file types, which allow for millions of possible brightness and colour variations. The 2-bit, black and white file reduced the file size considerable.

Compression

Even with trying different dpi's and reducing the file to 2-bit, the file was still excessively large. Which file compression type to use? JPG works best on photographs, looking for redundant information, such as areas of sky that are the same colour and brightness, and only saving that area of the photograph as a short code to say "make all this area this shade of blue". JPG can also do a good job on black and white, as in the circuit there are large areas of white. And sure enough JPG compression did considerable reduce the file size to about one quarter, but still too large. With JPG, you can vary the degree of compression, but on black and white lines, it shows up as a blotchy effect around the transitions from black to white. GIF, the other type of graphic file compression most used on Grey scale and black and white drawings did the best. GIF is limited to 256 brightness levels and hence does a poor job on colour photographs with millions of brightness and colour levels. GIF picks the nearest colour of the 256 and hence changes the overall colour of a photograph. Depending on the type of photograph this may or may not be noticeable. GIF did the job of reducing the file size from several megabytes to just under 600 Kbytes. This is not always true even though GIF is designed for Grey scale and black and white. Sometimes JPG will produce a better result at a smaller file save; it just depends on a range of factors.

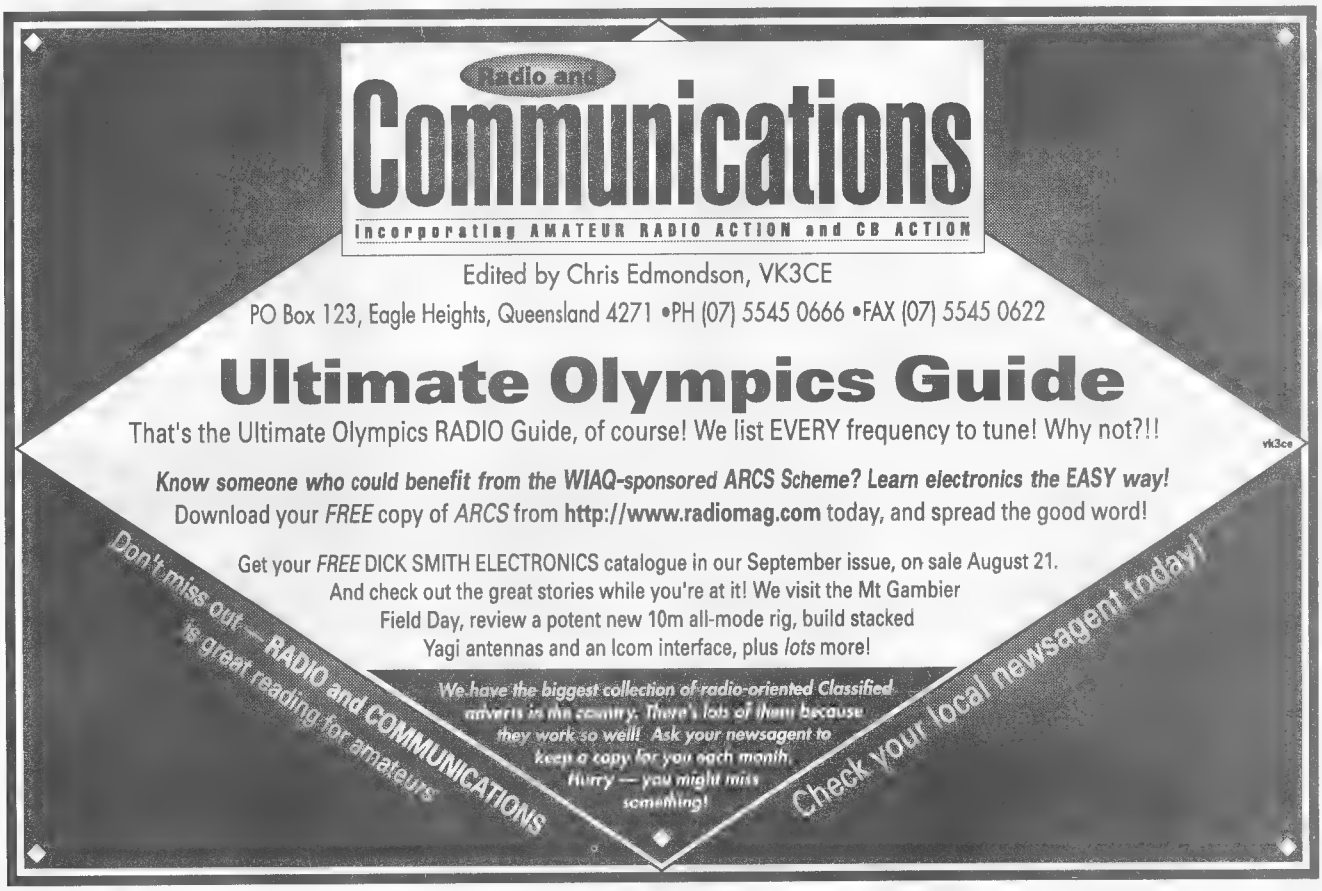
Available

If you want a copy of the FM828 circuit E-mailed to you please send me an E-mail and I shall send you a copy.

Compression Everywhere

While on the subject of graphic file compression, my job in Television has seen digital compression explode into the workplace. Most television you now watch is digitally compressed, particularly if you live outside Sydney, where most programs originate from and are relayed via satellite. These satellite links are more and more being digitally compressed to fit extra circuits on the satellite. Where only one analogue television program could fit, now four can occupy the same bandwidth with no noticeable quality reduction. A broadcast quality television signal converted to digital, with no compression, is about a 270 megabit per second data stream. Digital compression, such as MJPEG (motion JPEG) reduces this to 8 megabits per second with no noticeable reduction in picture quality. It is not until the digital compression is increased to produce a data stream of under 2-megabit per second that picture quality suffers. The picture shows graduated bands of similar brightness and colour indicating excessive compression. The number crunching that is going on to do all this is truly amazing.

This digital compression age has also seen television stations like the ABC and SBS, who network programs from Sydney, and have to time delay the program due to the different time zones, move from automatic tape delay systems to computer hard drive systems. These new systems have to store more than two hours of broadcast quality picture and stereo sound on a computer hard drive. Without digital compression, it would not be possible.


Radio and
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NOVICE NOTES

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A Guide to Test Equipment

It's boring, but necessary. That just about sums up many peoples' attitude towards test equipment. Though it might not get as much use as the station transceiver, it can be worth its weight in gold when something goes wrong and you need to fix it fast.

This month we look at five items of test equipment most commonly found in the amateur shack. We describe each instrument, list its uses around the shack and point out features to look for when buying.

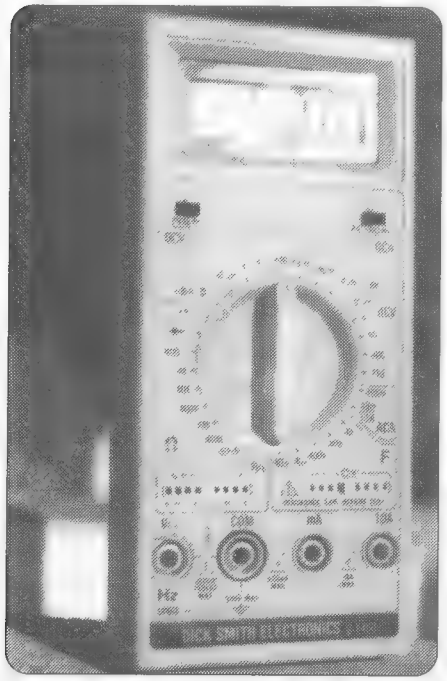


Photo 1

Multimeter

The multimeter is *the* fundamental item of test equipment that all amateurs should own. The cheaper multimeters (around $30) allow voltage, current and resistance measurement as well as transistor, diode and audible continuity testing. More expensive instrument may include features such as capacitance measurement, frequency counters, bargraphs, temperature ranges, computer connections and mains voltage ratings.

Practical uses for multimeters around the shack include:

- Testing antenna and power connections with continuity tester function.
- Verifying transceivers are being fed with the correct voltage.
- Checking polarity of power connections.
- Measuring the current drawn by station equipment.
- Making voltage and current checks when developing or troubleshooting circuits.

There are two main types of multimeters – analogue and digital. Both have their pros and cons.

Digital meters are so cheap these days that no amateur need be without one. They are easy to use and fairly accurate. There is no need to estimate the indicated value when the meter needle is between two closely-spaced markings. The cheapest digital meters also have functions (e.g. transistor tester) that are missing from analogue meters of equivalent price. Photo One shows a medium-priced digital multimeter that has been the main test instrument in the VK3YE shack for about nine years. It has the usual ranges plus capacitance, frequency and a logic probe.

Analogue meters have advantages over digital for some purposes. Analogue movements are particularly good at displaying varying voltages, such as audio signals. Also, when aligning transmitters, the fact that you've reached a peak (or dip) when making an adjustment is often more important than the actual value of the voltage (or current). An analogue movement is better at displaying such trends. Some of the better digital instruments have a bar graph function that combines the best features of both meters in one, but some users still prefer to keep the analogue meter handy.

Other features that amateurs should consider when buying a meter are: 20 amp DC current range (most HF transceivers draw up to 20 amps), audible continuity indicator (though missing from budget meters, it's *very* useful), capacitance, inductance and frequency measurements. The last functions may not work as well on the multimeter as on specialised instruments designed for a single task, but are still useful for much amateur work, especially when budgets are tight.

SWR/Power Meter

SWR and power meters cover a wide span. The cheaper meters provide

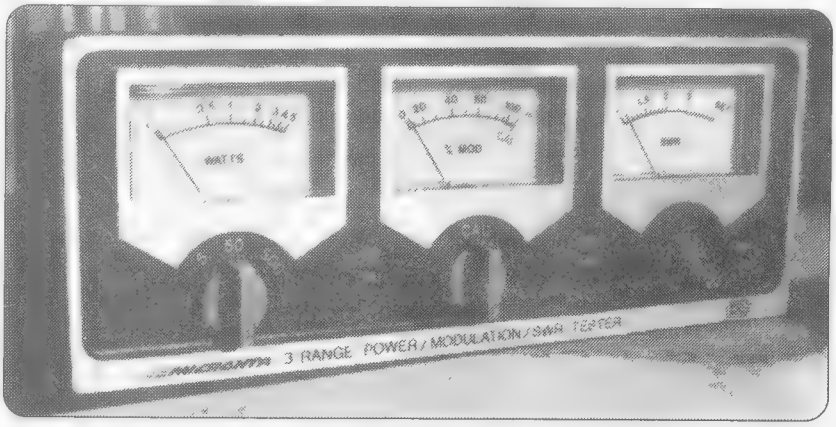


Photo 2

relative indication of the standing wave ratio (SWR) only and do not measure transmitted power. Slightly more advanced meters include RF power output and field strength indication as well. Most of these meters were designed for the 27 MHz CB market, but give useful relative indications up to 148 MHz. At lower HF frequencies (around 3.5 MHz) the sensitivity of these meters falls off dramatically so they can be useless at low transmit powers. Photo Two shows a CB-type instrument with separate meters for power output, SWR and percent modulation (for AM). It must have been designed for the CB pirate in mind, as its power scales range up to 500 watts!

The better meters, such as the Revex range sold in Australia, operate over a wider frequency range than the CB-type meters mentioned above. Their sensitivity is more uniform across the specified frequency range, which may be as much as 1.8 to 1300 MHz. Accuracy is also better, and the use of N-type connectors reduces losses and impedance variations at UHF.

Practical uses for SWR and power meters include:

- SWR measurements – These are almost mandatory for anyone who installs or constructs antenna systems and wishes to obtain the best performance from them, especially with modern equipment.
- RF power measurements – useful for testing transmitters or ensuring one is adhering to licensed power limits.
- Field strength measurements – useful for crude checks of handheld transceivers or antenna or feedline radiation. Measurements given are relative only. Not all SWR/power meters include this function, but a separate field strength meter is very easy to build (See NN April 97).

The SWR/power meter runs a close second to the multimeter as the test equipment item of most use around the amateur shack. The SWR function is most important, as modern HF transceivers do not deliver their full output power if the SWR is high. For such tests, even a relative-reading meter is sufficient. Those who repair, align or construct transmitting equipment are advised to obtain one of the better quality meters with output power indication.

Dip Oscillator

A dip oscillator is one of the main instruments used by the radio experimenter. People who experiment with antennas or build and align tuned circuits as used in HF transmitters and receivers will get most use from them. Applications for dip oscillators include:

- Testing tuned circuits in receivers and transmitters. A dip oscillator can give a reasonable indication of resonant frequency.
- Checking resonance of antennas such as mobile whips.
- Measuring unknown capacitors and inductors (especially handy for unmarked variable capacitors and inductors).
- An RF signal generator to provide test signals to align homebrew receivers or IF strips.
- As a crude beat frequency oscillator (BFO) to allow an AM receiver to tune SSB/CW signals.
- To monitor the quality of AM transmissions and listen for clicks on CW – some dip oscillators have an earphone socket for this purpose.
- RF field strength meter for antenna, feedline and RF leakage tests (though the author prefers to use a separate instrument with antenna for this).

The dip oscillator does all this and more in one or two transistors. It consists of a wide range RF oscillator and a meter. When the dip oscillator's coil is brought close to a tuned circuit that is resonant at the oscillator's frequency, the meter needle dips. What is happening is that the tuned circuit being tested is sucking RF energy out of the dip oscillator's coil, thus causing the meter needle to dip towards zero. The resonant frequency of unknown tuned circuits can be determined by holding the dip oscillator coil close to it and tuning the oscillator until the meter current drops. The dip oscillator's tuning control is normally calibrated in MHz to allow a direct reading of approximate resonant frequency.

Most dip oscillators come in a long narrow case with plug-in coils on the end. This is so that they can be stuck deep into the innards of radio equipment. Commercially-made dip oscillators can be hard to find and quite expensive new. However they are very easy to build and require just one specialised component (dual gang variable capacitor – common at hamfests). This makes them popular amateur construction projects. Photo Three is an example of a homebrew dip oscillator, built to a circuit described by Drew Diamond VK3XU.

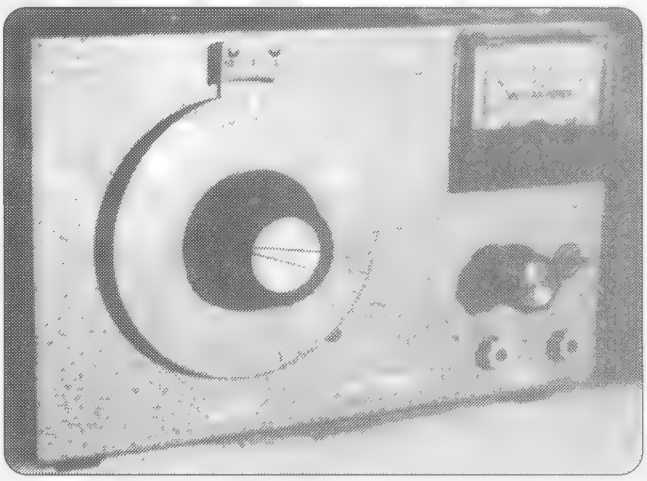


Photo 3

Dip oscillators are not known for their accuracy and long-term frequency stability. The need to perform mathematical calculations is another drawback compared to direct-reading instruments. However for a cheap and simple test instrument that can do lot, the dip oscillator is hard to beat.

RF Signal Generator

Yes, this one's a 1950s 'boatanchor', picked up at a local hamfest for not very much (Photo Four). Yet, provided one can tolerate the warm-up time and the drift at higher frequencies, it's still a useful instrument, forty years on. The best RF signal generators have good frequency coverage and stability, easy tuning (possibly via keypad as well as knob), in-built digital frequency readout, synthesised frequency generation and calibrated output levels. These come in 19-inch rack cabinets, and being intended for the professional, have price

Continued on page 26

tags to match. For most amateur applications, however, cheaper hobbyist-type instruments (e.g. Dick Smith Q1312) will do the job quite nicely.

Like the dip oscillator, RF signal generators are versatile instruments. However, due to their larger dial, better frequency stability and calibrated output levels, signal generators are superior for many purposes. Amateur uses for RF signal generators include:

- Test oscillators for receiver construction and alignment. The ability to directly inject signals (rather than rely on RF pickup) and control output levels makes signal generators ideal.
- Receiver converters. A signal generator can be a makeshift local oscillator when testing converters or mixer stages.
- Certain antenna tests, especially when it is not desired to cause interference to others by radiating a high power signal.
- A BFO for AM receivers when receiving CW/SSB signals. The ability to vary RF output level and easier tuning on the signal generator makes this technique superior to using a dip oscillator.
- A low power transmitter. People have had CW contacts merely by connecting a keyed signal generator to an antenna! However best results will be achieved if attention is paid to matters such as impedance matching to the antenna, quality of keying, frequency stability and suppression of harmonics.

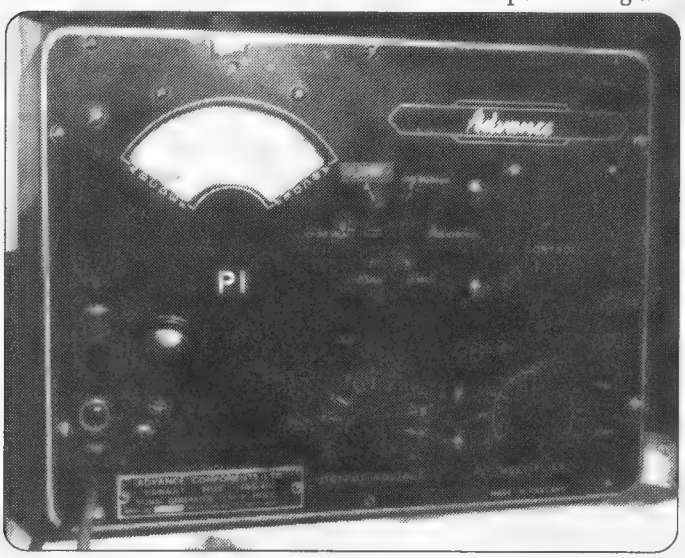


Photo 4

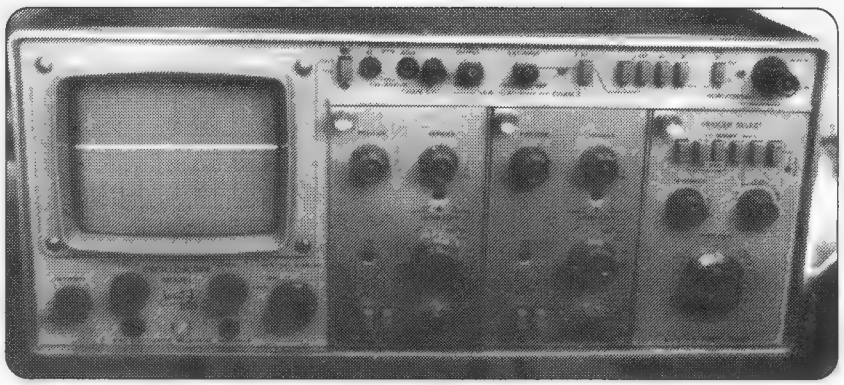


Photo 5

Cathode Ray Oscilloscope

Leaving aside those lucky few with spectrum analysers, RF test sets and other exotic equipments with five figure price tags, the cathode ray oscilloscope (or CRO) is the most advanced piece of test equipment that most of us can reasonably aspire to own.

If you intend to experiment with receivers and build the odd transmitter, you will not need a CRO. You can certainly get a homebrew CW, AM, FM or DSB station on the air without a CRO. However, if you wish to get the best performance and signal quality from homebrew or repaired equipment, a CRO is the way to go. Amongst other things, a CRO allows you to see waveforms from transmitters and oscillators. As you peak a tuned circuit, you can see the signal getting stronger. If you adjust a transmitter's power output setting too high, you may see the waveform depart from a smooth sine wave to one with odd troughs and bumps. If using an RF power meter, the needle might suddenly jerk up, but the signal still sounds good in the receiver. With a CRO you see things you don't always hear on a receiver and, by moving the probe back from the output stage, you can identify the stages that are introducing distortion.

CROs are more expensive than any other test equipment item described here. They might not be used often. However they are extremely valuable when used properly, and can provide a better insight into the actual operation of a circuit than any other instrument. For amateur purposes, maximum frequency that a CRO will go up to is important. The unit pictured (Photo Five) will go up to over 50 MHz – sufficient for most amateur work. Dual trace CROs are preferred.

Other items

In addition to the test equipment items mentioned above, ownership of an HF communication receiver (preferably with a digital readout) would be an advantage. The general coverage receivers included in recent HF transceivers are fine, though a separate receiver is preferred if your workshop is some distance from the main station. For VHF/UHF experimenters, a tunable VHF/UHF receiver will also be desirable. A Uniden Bearcat UBC9000XLT scanner, though it lacks SSB and misses most UHF TV channels, should be adequate for most. A frequency counter is nice to have, but not essential if you already have a good receiver with accurate digital readout.

Conclusion

This month's column has looked at the items of test equipment that the amateur should own. If your interests are mainly operating, the first two items are only really necessary. However, if you'd like to keep your equipment in top operating order, wish to make repairs, modifications or build new projects, all of the items described above will be useful. Plans for simple test equipment to build appeared in the April 1997 Novice Notes – also available via Novice Notes Online at the URL above.

AR

Updated Transponder Designations for Phase 3D

Bill Magnusson VK3JT
RMB 1627 Milawa Vic 3678 Email vk3jt@amsat.org

Some time ago it was decided to use a two letter designator to describe the transponders on P3-D. The first letter stands for the uplink, the second letter for the downlink. These new 2-letter assignments are consistent with the usual microwave band designations, where "K" for example means 18-26.5 GHz. Some gaps in the originally published designations have been filled in. Here are the new, hopefully final designations:

Letter	Frequency	Remarks
T	21 MHz	Uplink only
H	24 MHz	Uplink only
V	145 MHz	Uplink and Downlink
U	435 MHz	Uplink and Downlink
L	1.2 GHz	Two Uplinks only, L1 & L2
S	2.4 GHz	Two Uplinks and two Downlinks, S1 and S2
C	5.6 GHz	Uplink only
X	10 GHz	Downlink only
K	24 GHz	Downlink only

Note that the 21 MHz and 24 MHz designations, 'T' and 'H' are AMSAT's own as no commercial designators exist for the HF bands. The job of deciding on the HF designators was given to Matjaz Vidmar S53MV who designed and built the 21 and 24 MHz receivers for P3-D.

Half-yearly Update of Operational Amateur Radio Satellites

AMSAT-OSCAR-10 AO-10

Uplink 435.030 to 435.180 MHz CW/LSB

Downlink 145.975 to 145.825 MHz CW/USB

Beacon 145.810 MHz (unmodulated carrier)

Semi-operational, mode-B. AO-10 has been locked into a 70-cm uplink and a 2-meter downlink for several years. Monitor the beacon and cease transmission if your uplink causes the beacon frequency to vary. Excellent contacts are being made daily, although considerable uplink power must be used to access the transponder when the satellite is in a position to enable international contacts.

UOSAT-OSCAR-11 UO-11

Downlink 145.825 MHz FM, 1200 baud AFSK

Mode-S Beacon 2401.500 MHz

Operational. This aging OSCAR is still a gold-mine of telemetry information for schools and experimenters.

RS-13

Uplink 21.260 to 21.300 MHz CW/SSB

Uplink 145.960 to 146.000 MHz CW/SSB

Downlink 29.460 to 29.500 MHz CW/SSB

Downlink 145.960 to 146.000 MHz CW/SSB

Beacon 29.458 MHz

Robot Uplink 145.840 MHz

Robot Downlink 29.504 MHz

Operational, in mode-KA with a 10-meter downlink and a 15-meter and 2-meter uplink.

UOSAT-OSCAR-14 UO-14

Uplink 145.975 MHz FM

Downlink 435.070 MHz FM

Operational, mode J.

Now returned to the amateur service and providing excellent contacts via its cross-band, mode-J FM repeater.

RS-15

Uplink 145.858 to 145.898 MHz CW/SSB

Downlink 29.354 to 29.394 MHz CW/SSB

Beacon 29.352 MHz (intermittent)

SSB meeting frequency 29.380 MHz (unofficial)

Semi-operational, mode-A, using a 2-meter uplink and a 10-meter downlink.

PACSAT-OSCAR-16 AO-16

Uplink 145.90 145.92 145.94 145.96 MHz FM using 1200 baud Manchester FSK

Downlink 437.025 MHz SSB RC-BPSK 1200 baud PSK

Mode-S Beacon 2401.1428 MHz

Semi-operational.

LUSAT-OSCAR-19 LO-19

Uplink 145.84 145.86 145.88 145.90 MHz FM using 1200 baud Manchester FSK

CW downlink 437.125 MHz

Digital downlink 437.150 MHz SSB RC-BPSK 1200 baud PSK

FUJI-OSCAR-20 JAS-1b FO-20

Uplink 145.900 to 146.000 MHz CW/LSB

Downlink 435.800 to 435.900 MHz CW/USB

Operational. FO-20 is in mode JA continuously.

UOSAT-OSCAR-22 UO-22

Uplink 145.900 or 145.975 MHz FM 9600 baud FSK

Downlink 435.120 MHz FM

Operational and providing a great service to the packet radio community in forwarding international personal mail via the 'satgate' network. After another period of orbiting in full sunlight , UO-22 will be turned upside-down again later this year to cool the instrument package after continuous sunlight. During this period users may experience some degradation of the signal.

KITSAT-OSCAR-23 KO-23

Uplink 145.900 MHz FM 9600 baud FSK

Downlink 435.175 MHz FM

Operational but currently experiencing deep eclipses which tax the power budget. This may result in frequent periods of inactivity in the coming months.

KITSAT-OSCAR-25 KO-25

Uplink 145.980 MHz FM 9600 baud FSK

Downlink 436.500 MHz FM

Operational and carrying the bulk of digital traffic due to KO-23's eclipse problems.

ITAMSAT-OSCAR-26 IO-26

Uplink 145.875 145.900 145.925 145.950 MHz FM 1200 baud

Downlink 435.822 MHz SSB

Semi-operational, the digipeater function is on and is open to APRS use.

FUJI-OSCAR-29 JAS-2 FO-29

Voice/CW Mode JA

Uplink 145.900 to 146.000 MHz CW/LSB

Downlink 435.800 to 435.900 MHz CW/USB

Operational, rotated with digital mode and digi-talker.

Digital Mode JD

Uplink 145.850 145.870 145.910 MHz FM

Downlink 435.910 MHz FM 9600 baud BPSK

Digitalker 435.910 MHz

Operational, rotated with analog mode and digi-talker.

TMSAT-1 TMSAT-OSCAR-31 TO-31

Uplink 145.925 MHz 9600 baud FSK

Downlink 436.925 MHz 9600 baud FSK

Operational and restricted mainly to imaging experiments. Many of the high-resolution colour images transmitted by TMSAT arecompressed using a UoSAT compression format. This is quite different to the more common imaging formats like TIFF, JPG, BMP etc. Users will require the latest version of the WiSP module ProcMail V2.00G and Colin's (vk5hi) CCD Display program to process the images.

SUNSAT-OSCAR-35 SO-35

Uplink 436.291 MHz FM

Downlink 145.825 MHz FM

Operational, mode B.

AMSAT-South Africa reported recently that SO-35, has started transmitting digital signals. The SunSat package includes 1200 and 9600 baud digital store-and-forward capability. No reports of the digital signals have been received to date. Due to its limited power budget, SUNSAT has been subject to a restricted operating schedule with updates being announced on the AMSAT News Service from time to time.

UOSAT-12 UOSAT-OSCAR-36 UO-36

Uplink 145.960 MHz 9600 baud FSK

Downlink 437.025 MHz 437.400 MHz

The downlink is currently running at 38k4 baud.

UO-36 carries a number of imaging payloads, digital store-and-forward communications and mode L/S transponders. It was recently the test-bed for NASA demonstrations using INTERNET protocols on orbiting satellites.

Much of this information was gleaned from the AMSAT News Service, word-of-mouth and from my own operating experience. Whilst every effort is made to ensure it is current at the time of writing, the very nature of the amateur radio satellite service is such that operating conditions can and sometimes do vary on a daily or weekly basis. It is therefore suggested that serious satellite users download the latest information from the AMSAT web-site www.amsat.org or subscribe to the ANS (Amsat News Service) via internet email. This may be initiated via the AMSAT web-site.

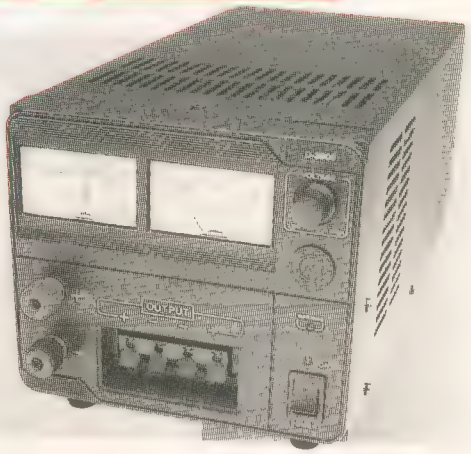
DON'T MISS THE ACTION!

3-15V 25 Amp DC Power Supply

Our highest performance power supply, with current up to 25 Amps ICAS at 15 Volt, 20 Amps continuous at 13.8 Volts, and lower currents at lower voltages. It also has front panel metering, plus high-current banana-style and low-current output connections for extra flexibility. An internal heatsink and thermally-switched fan provides cooling without protrusions in the metal case (which measures 320 x 150 x 145mm). Don't confuse this power supply with look-alikes, it's been specially modified to DSE specifications for more reliable long-term operation, and uses a rugged 50 Amp bridge rectifier and a trifilar-wound transformer. We've also provided extensive overload protection through dissipation-limiting circuitry for the pass transistors, a 30 Amp instantaneous current limit, quality AC mains circuit breaker, a transformer thermal fuse and fused auxiliary secondary winding.

D 3800

$297



VX-5R 6m/2m/70cm Deluxe Hand-Held

Tiny yet incredibly rugged, the VX-5R provides 6m, 2m and 70cm amateur band operation with 5W output as standard (4.5W on 70cm), made possible by a unique PA design and a super high capacity 7.2v 1100mA/H Lithium-ion battery. Plus, ultra-wide coverage VHF and UHF as well as AM medium-wave and shortwave reception facilities are provided, along with a large backlit dot-matrix LCD screen. All this in a diecast aluminium enclosure just 58 x 87 x 28mm WHD (without knobs or antenna)!

Features

- Tx: 50-54, 144-148, 430-450MHz
- Rx: 0.5-1.8MHz, 1.8-16MHz, 47-729MHz, 800-999MHz (cellular blocked)
- Full feature keypad, CTCSS encode/decode, digital code squelch
- Comprehensive menu system
- Over 200 memories
- 8 digit alpha-numeric memory labelling
- 5 battery saving systems, plus Tx/Rx usage monitor
- Spectra-Scope™ for monitoring adjacent channel activity
- Comes with FNB-58LI Lithium-ion battery, flexible antenna and AC adaptor/charger

D 3670

2 YEAR WARRANTY

YAESU

$660

FT-8100R 2m/70cm Mobile

The Yaesu FT-8100R is a state-of-the-art 2m/70cm band mobile transceiver that combines high power and a highly versatile memory system with an excellent wideband receiver and solid construction. Its US MIL-STD-810 shock and vibration rating is your assurance of years of reliable operation. Includes hand mic, mounting bracket and fused DC power cord.

Features

- 198 memory channels
- 1200/9600 baud packet socket
- Inbuilt antenna duplexer
- Inbuilt crossband repeater facility
- Dual receive capability (VHF/UHF, VHF/VHF, UHF/UHF)
- Optional remoteable front panel

Frequency range: Tx 144-148MHz, 430-450MHz
Rx 110-550MHz, 750-1330MHz (less cellular)

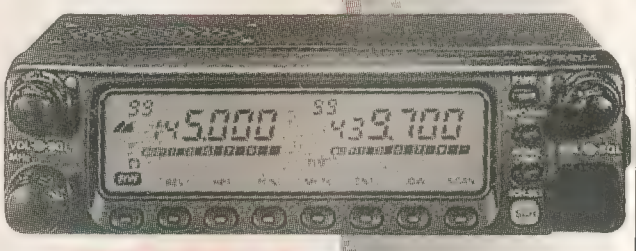
Output power: 2m: 50, 20, 5W
70cm: 35, 20, 5W

D 3314

2 YEAR WARRANTY

YAESU

$1017



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Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW (PEP) power handling. Wide-band coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, <2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at 2:1 SWR. An optional 30m resonator kit can be installed without affecting operation of other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

D 4920 **$383** HUSTLER

30m Resonator Kit

Adds 30m coverage to the 5BTV and includes all hardware. **$98.48**

D 4921

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

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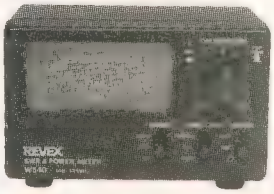

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Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

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Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Emie Hoshing	VK1LK

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(Office hours Mon-Fri 1100-1400)
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Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

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Secretary	Barry White	VK2AAB
Treasurer	Pat Leeper	VK2JPA

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Web: *http://www.tbsa.com.au/~wiavic/*
Fax 03 9885 9298
e-mail: *wiavic@alphalink.com.au*

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CEO	Barry Wilton	VK3XV
Secretary	Peter Mill	VK3APO

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Phone 07 3221 9377
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Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

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VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*

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Secretary	David Minchin	VK5KK
Treasurer	John Butler	VK5NX

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.omen.net.au./~vk6wia/*
e-mail: *vk6wia@omen.net.au*

President	Neil Penfold	VK6NE
Secretary	Christine Bastin	VK6ZLZ
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
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Phone 03 6233 3709 (BH)
Web: *http://www.wia.tasnet.net*
email: *batesjw@netspace.net.au*
Fax 03 6223 7816

President	Phil Corby	VK7ZAX
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Sunday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK3BWI broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $78.00 Pensioner or student $61.00. Without *Amateur Radio* $47.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $85.00 Pensioner or student $72.00. Without *Amateur Radio* $56.00

VK5WI: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full $77.00 Pensioner or student $63.00. Without *Amateur Radio* $49.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $69.00 Pensioner or student $59.00. Without *Amateur Radio* $38.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $88.00 Pensioner or student $75.00. Without *Amateur Radio* $55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

Division News

VKI Notes

Forward Bias

Peter Kloppenburg VK1CPK

The Novice course that was started in early February has ended with an exam on July 30. The course went very well. Using Graeme Scott's text, students were taught enough to pass the Novice exam. Among others, there were two women in the class, one 12-year old boy and a 10-year old girl. Although their husbands, boyfriends, and the kids' father are active hams, none of these students had any practical experience with radios or electronics. Coaches, Chris Davis, Richard Elliott, Gilbert Hughes, and Dennis Gibson spend much time and energy bringing radio/ electronic equipment to the classes to show what things looked like and demonstrate their use. Students saw EHT devices, transceivers, Linears, resistors, capacitors and coils of all shades and sizes. They handled transistors and valves, and learned how to use test equipment such as oscilloscopes, SWR meters, and Volt-Ohm-Current Meters to make measurements on radio communications equipment. The exam results will be an indication of how well the Division organised the Novice course.

Our Treasurer, Ed Alcott, has been forced to relinquish the position owing to a serious illness. We all wish Ed well in the trying times ahead, and a big 'thank you' for a job well done. Committee member Ernie Hocking has agreed to take on the treasurer's duties.

Planning for the upgrade of the 70-cm VK-East coast-Link continues. A number of Philips 815T transceivers have been obtained, and tests are being made in several places in NSW to determine the minimum number of hops between repeaters. Various sites are being evaluated, such as Mt Gray, Mt McAlister, Knight's Hill and Mt Ginini. Other sites are Mt Sugarloaf, Maddens Plains, and Cabbage Tree. Maintaining a high standard of reliability and audio quality is vital along a chain of repeater links, and this aspect, together with the backbone route planning, is being considered. Once the planning stage is finished, crystals and antennas can be obtained, equipment modified and installation commenced. This is a joint project between VK1 and VK2 clubs and Divisions, and many lively Emails, as to the best way to go, are being exchanged between the parties. The Division is still looking for a broadcast coordinator. The Sunday evening session is normally transmitted on 2 metres and relayed onto 80 metres. If you want to develop your talents in that direction, contact Gilbert Hughes on (02) 6254 3266.

The next General meeting of the ACT Division will be held at Room 1, Griffin Center, Civic, Canberra City, on August 27, 2000. Cheers, Peter K.

VK4 Notes- Qnews

By Alistair Elrick VK4MV

Rally, Really Successful

This month I would like to bring you a report recently presented on Qnews by David Jones VK4OF, the Secretary of the WIAQ, in his role with Brisbane Area WICEN. I think this demonstrates that these dedicated Amateurs and WICEN members have contributed immensely to the public profile of the Amateur service and highlighted the cooperation that exists between groups of willing Club volunteers. Over to you David.

During the weekend of the 2nd - 4th of June, over thirty Amateurs participated in and contributed towards a communications exercise in SouthEast Queensland. This being provision of scores data for Rally Queensland, held in the State Forests around Imbil, to Rally Headquarters at the Rydges Oasis Resort in Caloundra some seventy kilometres away.

Rally Officials would pass start times to the start operators, and provide the finish data string containing start time, finish time and elapsed time, to the operators at the end of each stage. Almost half of the start operators, and all but one of the finish operators, were using packet radio, operating a simple program written by Brian, VK4XS who was the Amateur in charge of scores communications at Rally HQ. The program is called RForm, which is now up to Version 4.01, so successful has it been. It dovetails with his receiving program, called RScore, which prepares it for output to a printer or another computer, or to an Access database, which Brian had written.

Mt Kandanga Southwest of Gympie was the Rally Base, with a team of four operators. All members contributed to the camp structure and chores, with each responsible for his particular area of expertise. Neville VK4TX established and maintained the packet network, including the newly installed infrastructure at the site of VK4RZC. Paul VK4ZEM supplied and maintained a continuous 240-volt supply. Geoff VK4AG established and maintained the radio shack. David VK4OF controlled management and voice networks, entering the data in near real time as it was received from those in the field who were not using packet. This meant that within not much more than a minute of a competitor finishing a stage, the score was well on its way to Brian and the State WICEN Co-ordinator Ewan VK4ERM his assistant at Rally HQ, via a full duplex packet network.

The managing director of Philcomm, a commercial communications operator and major sponsor, noted the substantial difficulty transmitting over such considerable distances, using VHF and above. As an example, Mt Kandanga at 576 metres gives a clear path, just to the

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east of Mt Borumba at 624 metres, all through to the Maleny plateau at 440 metres. However, to get to VK4RZC where the packet link was established meant entering the fresnell zone, given that VK4RZC is more than 100 metres below the plateau. And that's before you consider earth curvature.

The main packet link between Mt Kandanga and VK4RZC was a full duplex UHF link on 439.225 MHz, with a tertiary backup at the QTH of VK4RX on 434.050 MHz. The field packet network at both the start and end of stages was on 144.700 MHz and this went through the node on Mt Kandanga, going out on 439.225 MHz. There were also two VHF voice circuits. The first was a simplex on 146.550 MHz, which had to QSY due to intermod problems caused by spurious emissions from a dirty car radio belonging to a rally official. Here special thanks to Nev VK4TX who was able to calculate the frequency source of the emissions and then to determine which radio was causing it. Sincere thanks also to Hoss and the team at Philcomm for locating and replacing the offending radio within thirty minutes of being advised of the problem.

The second circuit was a repeater network established by Brisbane Area WICEN Group President Ray VK4KV on Mt Borumba. Ray was assisted by Doug, VK4JJP, and this repeater was used to augment the voice scores being sent to Rally Base on Mt Kandanga where voice data was being entered into the laptops. It was also used by the stage finish assistants to send elapsed time scores back to the Spectator areas, where this information was eagerly received by the Public Relations people who then broadcast it to the public who attended to watch the event.

A further UHF voice repeater circuit on 438.475 was used by Brian and his assistant, to keep in contact with Rally Base on Mt Kandanga, especially for checking on missing scores. This repeater will be maintained, and become part of the growing infrastructure, which is part of the joint QDG/Brisbane Area WICEN Group Project. Funding for this massive network project, which eventually will reach almost to Coffs Harbour, has already been commenced, with donations from Brisbane Area WICEN Group and the Queensland Division of the WIA allowing stage 1 to be effectively completed specifically for this event.

The various members at each of the stages 1 to 8 and 10 to 15 teams were: Bob VK4YBN and XYL Louise, Simon VK4TSC, Ed VK4JEN and XYL Karen, Paul VK4KBD, Graham VK4GBS, Bill VK4AZM, David VK4DCG, with XYL Shirley and family, Geoff VK4KEL, Murray VK3JKZ, Richard VK4ZA, Malcolm VK4ZMM, Paul VK4ZBV and XYL Jean, Bruce VK4EHT, Bill VK4HBP, Alan VK4AL. The Sunshine Coast ARC team of Len VK4ALF, David VK4KDL, Sid VK4SJF, Louis VK4KKL, Wayne VK4SWC and Barry VK4KKN at the very difficult Hella Hill Stage 9 at Tinbeerwah.

When you add in the Spectator Team of Julie VK4JJB, Ron VK4FC, David VK4DZAand his XYL Rochelle, and Kerry VK4JKR, you can see just how big this operation really was.

Without doubt, this is one of the premier events involving Amateur Radio assisting the public in a planned exercise, and it gives us great experience in the use of packet and phone circuits in the field. To give you an idea of the amount of data being sent, Neville reported there was a particularly busy period in which over 1500 packets were sent through the network in a fifteen minute period, and the data entry laptops on Mt Kandanga sent over 800 individual scores messages. That's a lot of fast typing.

Sincere thanks to Nev VK4TX, Ken VK4KWM, and the members of the Queensland Digital Group who were responsible for such a great result. Also thanks to the President and members of the QDG, the Sunshine Coast ARC, and Brisbane WICEN who assisted at the two Working Bees installing the infrastructure and sourcing the equipment for this exercise.

On the Sunday evening, my wife Jan and I attended the presentation dinner. We took the courtesy bus from the Oasis to the Caloundra Civic Centre, and were boarding with the Clerk of the Course, Mr Errol Bailey. In almost shaking my hand off my wrist, Errol just looked at us, and said ... "almost too much information, too often, too quick, too accurate ... just simply too perfect". That one moment made all the freezing winds, the driving rain, the bone-chilling cold, the insufficient showers, the over-or-under cooked camp food, the dust and all the frustration of past radio failures, all melt away. This year, it was an undoubted success, but was in fact the culmination of over seven years of planning, experimentation and many failures in the use of packet as a reliable means of data transmission for WICEN and SES purposes.

On behalf of the Brisbane Sporting Car Club and Brisbane Area WICEN Group, I wish to sincerely congratulate and thank all those who helped make this such a successful exercise and event. David Jones, VK4OF.

Well done all those participants and cheers from Alistair VK4MV.

VK7 Notes

VK7 Division Executive 2000/2001

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Education Off. Mr. Reg Emmett VK7KK
Intruder Watch Mr. Robert McKenzie VK7RB

DX NOTES

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Disaster has struck my shack!

My IC 746 has developed a fault in the transmitter and only outputs a couple of watts on all of the HF bands.

I know I have let it be known that I enjoy QRP, but 2 Watts from a '746 is not exactly efficient or in the spirit of QRP operation. It has been sent off for repair and hopefully it'll be back in the shack soon. I am now using my 'old faithful' FT101Z. Apart from the inconvenience of having to 'tune' and 'load' the PA section the '101 is doing a great job. I managed to work Clive, GM4POI who resides in the Orkney Islands off the North coast of Scotland. He was on 20m in late June. Apart from the normal adjacent channel QRM, which is par for the course on 20m, we managed a 2 x 559 QSO. The 500Hz CW filter fitted to my '101 makes copying much easier on a congested band, and in my opinion, works better than the DSP filters on my IC746.

The TNC is still missing from my packet-cluster setup in the shack. Everything else is set up and ready and waiting to be connected to the TNC. Hopefully, one will arrive soon from the land of Uncle Sam.

The ANZA net (daily at 05:00 UTC on 14183kHz +/- QRM) is worth a visit. Some interesting DX stations often appear on this net. I managed to work Dudley, Z22JE (Zimbabwe) and Gerd, V51GB (Namibia) on SSB. Signals were not great but they were easily readable here in Melbourne. I also managed to work Brian, 9J2BO (Zambia) on CW at approximately the same time in the afternoon a few days later. His signals were much stronger, in fact one of the strongest signals on the band at the time.

Early in June there was a severe CME (Coronal Mass Ejection) from the Sun that had me eagerly monitoring the bands to see what effects it would produce on propagation, whether enhancing or depressing propagation. From my perspective 10m and 6m were not affected at all and signals on the lower bands seemed to fade out earlier in the evening than normal. I would like to learn a bit more about the effects the sun has on the ionosphere. The various types of events on the Sun obviously have different effects on the ionosphere. Sometimes enhancing and at other times depressing propagation, which event causes what effect? Can anyone recommend a good book on the subject? While on the subject of things solar. The Daily DX News lists two web pages dealing with propagation forecasts and current events on the surface of the Sun. A current Propagation forecast, along with the various related indices, can be found at http://dx.qsl.net/propagation/ Some magnificent solar images can be viewed at http://www.sel.noaa.gov/solar_images/2000

The DX

There is some nice DX around on the bands just now. I have worked stations on 20m and 15m CW in July. The 17m band should be able to produce some good DX, its characteristics should be similar to 20m and although there are many Europeans on seasonally, I have heard little 'rare' DX on this band. The 10m band has also been very disappointing from my QTH. I would have expected much more activity on this band as we are practically at the peak of cycle 23. The regular JA's, HL's and UA9's have been available but little else. Perhaps the band conditions have not been the best lately due to the CME in early June. Hopefully the bands will pick up again for August and if so here are some interesting stations that will be active this month.

BY, China. Fred, WF6Z, will be in China until 15th August as a member of the American K2 North Ridge Expedition climbing team. He will also operate from the K2 camp base in the Xingiang Province as BT0QGL. Look for activity on 40/20/15/10 metres. QSL via K6EXO, Harvey G. Shore, 6433 Pat Ave, Westhills, CA 91307, USA.

C6, Joe/W8GEX, Ron/WA8LOW, Mike/N9NS and Mike/K9AJ will be active as C6AJR. The group will operate two stations (CW and SSB on 6-40 metres) from the Berry Islands (NA-054), Bahamas between the 28th and 31st July.

CT3, Look for Ben, DJ8FW, to be on from the Madeira Islands possibly as CT3/DJ8FW from July 20th to August 20th.

GH4BJC/P, Chris, G0WFH, plans to be active with this special call sign from the island of Jersey between the 12th and 22nd of August. He will be operating QRP with the ISWL club call on SSB only. QSL via G0WFH, Christopher Gresswell, 121 Gramby Court, Gramby, Milton Keynes, Bucks MK1 1NG, UK.

M0RAA/VP9, operator Seiji Fukushima, will be on the air 21st – 26th of September. QSL via JH6VLF, Masanori Matsuyama, 303-Junesusuzuki, 1330-Hiregasaki, Nagareyama, 270-0161, Japan.

TF, Iceland. Ed, G3SQX, will be operating as TF/G3SQX (EU-021) from 28th July till 6th August, his activity will be CW only on as many HF bands as possible. Ed will run 100w and a variety of antennas. Check Ed's Web site at: http://www.G3SQX.net QSL via G3SQX,Edwin Taylor, 4 Oaklands Avenue, Birmingham, B17 9TU, UK.

VP5. Carlo, I4ALU will be active (on all HF bands CW only) as VP5/I4ALU from Jody's (VP5JM) QTH on Providenciales (NA-002) between the 14th and 28th of August. QSL via I4ALU (Carlo Amorati, Via Battistelli 10, 40122 Bologna - BO, Italy).

VQ9, CHAGOS ISLANDS. Dale, W4QM, will once again be active as VQ4QM from Diego Garcia. He will be active for 4 -5 months starting in mid-late July, mainly CW. QSL via W4QM, Harmon D. Strieter, 928 Trinidad Road, Cocoa Beach, FL 32931-3050, USA.

ZS, Vlad, ZS6MG has been authorized to operate as ZS0M till the end of the year to celebrate his 25 years of amateur

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radio activity. He plans to air the special call in major contests and during the weekends around 14 UTC on 10 or 15 MHz CW and SSB. QSL via ZS6MG either direct (Vladimir Karamitrov, P.O. Box 1788, Bramley 2018, South Africa) or through the bureau. [TNX ZS6MG]

XE. Jack, F6BUM will be active as XE3/F6BUM from Mujeres Island (NA-045) between the 30th of August and the 8th September. QSL via F6BUM, Jaques Mainguy, Buzet Sur Baise, 47160 Damazan, France.

9A, 9A1CZZ reports that special calls 9A900Z and 9A900BP (Krk Island, EU-136) will be aired on all bands and modes through the end of the year. QSL via 9A2DM, Vladimir Talan, PO Box 77, 48000 Koprivnica, Croatia.

IOTA Activity

I received a letter from a reader in Queensland (I've lost his letter and can't remember his name) who tells me that there are quite a few IOTA chasers in VK. This is good to know because I was beginning to think that DX chasing of any kind was dying out here in Australia. IOTA is 'big' in Europe and the US and every new island that qualifies for a reference number seems to be buried under a dog pile when a station does gets on the air. Some have said that IOTA is something to occupy your time on the air after achieving DXCC. I strongly disagree. There are far more islands that qualify as individual entities than there are DXCC recognised countries. Working some of these islands is a much more difficult task than working some rare countries. Some islands have no permanent population, let alone a licenced amateur operator, and are only activated on an annual basis. So if it is the 'spirit of the chase' that gets the blood flowing in your veins then IOTA could be for you. If you missed the IOTA contest during the last weekend in July, try and have a listen on the preferred IOTA frequencies (listed below) and see if you can log some of the following stations

EU-077

EA1GA/P will be active from Noro Island (EU-077) on the 8th and 9th of July, followed by a visit to the Erbosa Islands (EU-077) from the 12th to 15th of August. QSL via EA1GA, Amadeo Rodriguez, PO Box 14, 36640, Pontegesures, Spain.

NA-NEW

Blaine, KL7AK, and a team will activate the Kudiakof Islands. These are part of the Northern Alaska Peninsula West group, a currently unnumbered IOTA island group. The team expects to be on the island from the evening of the 4th of August UTC, until early in the morning of the 9th. Operators will include Rick, KL7AK; Blaine, KL7TG; Larry, KF6XC; and Tom, WOGLG. They will concentrate mainly on 20 metres because it should be open around the clock. Look for KL7AK on 14260, they will make CW contacts on request. QSL via N6AWD, Fred k Stenger, 6000 Hesketh Drive, Bakersfield, CA 93309, USA.

SA-047 Mel Island.

The 59(9) DX Report says that a group of Brazilian YL's will go to Mel Island on the 10th August. They will be active as PR5YL until the 14th of August. QSL via PP5LL, Jaime Lira Do Valle, PO Box 08, Florianopolis, SC 88.010-970, Brazil.

OC-NEW

Dan, VK8AN, Len, VK8DK and Terry, VK8TM will be travelling to a couple of new IOTA locations early in the coming southern spring. They are planning to operate from Browse Island from September 1st to the 5th, then from Cassini Island from the 7th till the 11th of Sept. Callsigns will be announced shortly. The QSL route is via VK4AAR: A. Roocroft, POB 421, Gatton 4343, Australia. The reference numbers for the islands will be announced as soon as IOTA requirements are met.

AS-028

Alexander, UA0QBA will soon be active from Kotelny Island (AS-028) on CW, SSB, RTTY, PSK-31 and SSTV. He is expected to stay on the island until the summer of 2001. QSL via UA0QBA, Alex, PO Box 145, Yoshkar-Ola, Mariy-El, 424000, Russia.

Special Events

The 'International lighthouse/lightship weekend' is being held on the weekend on the 19th and 20th of August. A continually updated list of participating stations can be found on the web at the following site, www.waterw.com/~weidner/LH-day-table.htm. There are a large number of stations being set up at Lighthouses/Lightships all over the world so it should prove worthwhile to do a bit of searching on the bands for some exotic locations.

Queen Amazona 2000 DXpedition. A team of Colombian and U.S. operators will use the callsign 5K9AQ to celebrate the "Queen Amazona 2000 DXpedition". This is a very long trip along the Amazon River. The station will be active for the rest of the year. No set schedule for bands or modes is available but I suggest listening on 20 and 15metres during times when propagation favours South America. QSL for the event is via HK3PXA, Roberto Rey, P.O. Box 101939, Bogota, COLOMBIA.

The 225th anniversary of the city of Krivoy Rog is the reason behind the special event stations EO225E, EO225EA, EO225EJ, and EO225EL. These calls will be active on all bands until the 27th of August. If you make contact with these stations (3 QSOs, duplicates are valid on different bands or modes), you will receive the "Krivbass Award" for 5 USD or IRCs. QSLs for all the callsigns are via UT1EJ, Yuri Arkhipov, P.O. Box 101, Krivoy Rog, 50071 Ukraine.

Round up

Amateurs Radio operators on Cyprus have been granted permission to use the special prefix 5B40 (Five Bravo Forty) from 1st of July until the 30th of November 2000 to celebrate 40 years of the Republic of Cyprus. Use of the special prefix by Cypriot hams is optional during the above period.

Thanks to W4KM for translating an article in the 'Russian Patriot Magazine'. The article stated that Russia has returned to a centralised QSL bureau system which is attached to the Central Radio Club (CRC). The SRR (Union of Radioamateurs of Russia) Presidium has confirmed a set of rules for the operation of the QSL bureau. The address is PO Box 88, Moscow, 123459, Russia. But a word of warning, 'Packages, wrappers and letters arriving from abroad indicating no individual recipient will be opened; enclosed money and IRCs are removed and will be credited to the CRC account. Envelopes showing the callsign of the addressee are not subject to being opened'.

Two young German Amateur Radio operators have announced that they intend to operate from Christmas Island in August this year. Stefan, DH1SGS and Toby, DH1TW will be active from the Indian Ocean Island from the 13th to 25th of August as either VK9XY or VK9XW. The pair will take along 2 transceivers, a 400-watt amplifier, an HF9V vertical and a Force 12 C3 beam. Stefan will operate SSB while Toby will handle the

CW pileups. More details of their adventure can be found at http://www.qsl.net/vk9xw.

E41, PALESTINE. Jess, KR4OJ, recently had a QSO with David, E41/OK1DTP. David informed Jess that he is working at a school in Palestine and will be there until July 2001. Jess looked David up (under OK1DTP) on QRZ.COM web page (http://www.qrz.com), and found David's email address (okldtp@hotmail.com). Jess dropped him an e-mail and told him that he still needs E41. David wrote back to him and organised a sked. David said that he will continue to be available on the air (from the school) each Friday. If anyone needs E41 then simply drop him an e-mail and he will set up a sked, SSB or CW. QSLs are handled by his father, Jiri Lunak, OK1TD, U Sporky 185, 470 01 Ceska Lipa, Czech Republic.

Like listening to the beacons? A nice piece of software called BeaconSee allows you to determine propagation conditions to/from the various NRDX Beacon locations. It displays a great-circle map centred on your QTH showing propagation to/from the various NRDX Beacons. The software can be down loaded for free from the following website http://sapp.telepac.pt/coaa

The correct QSL route for EX8M is Vladimir Ya Sudakov, P.O. Box 2, Kara-Balta 722030, KYRGYZSTAN.

The RSGB has just announced the passing of another famous amateur operator and it is with great regret I pass on the news of the death of Louis Varney, G5RV (ex 8P6DF, CX5RV). Louis 'Reg' Varney became a silent key on the 28th of June at the age of 89. Reg was the inventor of the world famous G5RV antenna. He was a member of the FOC and the RSGB. The number of G5RV antennas installed above shacks all over the world is testimony to the popularity of a design that has weathered the inquisitiveness of amateur antenna experimenters well for years, and will do so for years to come. Our sincere condolences go to the Varney family.

If you hear or work any DX stations, have any news regarding upcoming events on the bands please drop me a note either via email or the post. I'll be glad to include the information in DX Notes. 73 and good dx.

Sources

Thanks and recognition are due to the following people and organisations. Vlad, ZS6MG, Tedd, KB8NW; Tomas NW7US; 59(9) Report; OPDX Bulletin; 425 DX News and The Daily DX by Bernie McLenny, W3UR.

ar

DXCC listings

SSB

Roll of Honour SSB

vk5ms	331/385
vk5wo	331/384
vk6lk	331/356
vk3qi	331/345
vk4ua	331/345
vk3dyl	331/337
vk2fgi	331/337
vk6hd	330/358
vk4lc	330/337
vk4oh	330/337
vk6ru	329/384
vk1zl	329/335
vk3akk	327/338
vk2dej	327/333
vk6ne	326/342
vk4aar	323/327
vk3yj	322/325
vk3amk	321/340

vk5ee	321/327
vk2avz	319/330
vk7bc	319/329
vk6vs	319/323
vk3csr	316/325
vk5fv	314/317

Ordinary list SSB

vk6ajw	312/317
vk6apk	310/315
vk5wv	306/328
vk6py	306/312
vk3ji	304/319
vk6ro	303/309
vk3ir	302/308
vk4lv	295/297
vk4sj	295/296
vk4icu	294/296
vk4dp	293/305
vk2wu	291/296
vk4bg	286/302
vk3cyl	282/288
vk3dp	271/274
vk4cy	271/273
vk4ej	267/269
vk3gi	263/267
vk3vq	259/276
vk5ie	258/261
vk4bay	251/254
vk3uy	251/253
vk3cim	250/254
vk6anc	244/248
vk2pu	243/247
vk6yf	238/241
vk7ts	237/238
vk6abs	235/
vk2ckw	234/237
vk2hv	234/
vk6apw	228/229
vk3ds	226/236
vk3etm	226/227
vk3sm	222/242
vk5bo	217/222
vk4ems	215/
vk3dd	213/217
vk4xj	204/216
vk3dvt	201/204
vk3eft	198/201
py2dbu	195/197
vk4il	194/
vk2uk	190/194
vk4au	189/190
vk6wjh	183/
wa1mks	171/
vk6aph	168/169
vk7jab	162/
lu5dse	161/
vk4arb	159/160
vk2no	157/
vk4it	154/155
vk4chb	152/153
vk2fhn	149/
vk4dmp	147/148
vk2gsn	147/
vk4bp	146/
vk2sps	141/143
vk3dnc	141/142
vk6lc	139/140
vk2eq	139/
vk6lg	134/135
vk3dq	133/147
vk2lee	130/132
vk4ao	127/
ti2yll	127/
vk4vis	126/128
yc8emh	126/127
vk7luv	126/
tg8ne	125/
vk3ti	122/125
sm6prx	121/126
hl4yd	118/119
vk2mh	116/118
vk7wd	115/116
vk5gz	113/115
vk4njq	111/115
vk6nv	111/113
ja8xdm	111/
c21dj	109/
je9ema	108/
vk5uo	107/110
hc2hyb	106/107
vk4lw	105/
vk2ejk	104/
jn6mic	103/104
zs6ir	102/104
kb2nek	102/103
c21nj	102/
vk2fzr	102/
jh3oho	101/103
vk2ejm	101/103
vk3kto	101/102
vk1prg	101/
vk2irp	100/101
on4bcm	100/

CW

Roll of Honour CW

vk6hd	331/352
vk3qi	331/343
vk5wo	323/339

Ordinary list CW

vk3ks	307/335
vk4icu	279/
vk6ru	278/322
vk4lv	278/285
vk3ji	271/296
vk3akk	270/275
vk4ku	251/
vk6mk	243/245
vk3dp	242/245
vk2cws	239/241
vk3dq	234/261
vk7bc	234/243
vk4da	233/235
vk3cim	228/229
vk4cy	207/208
vk4dp	205/216
vk7ro	201/204
vk6py	190/194
vk5gz	189/191
vk6hw	179/182
vk5uo	165/166
vk7ts	165/
vk5bo	159/184
vk3dnc	154/157
vk4xj	150/163
wa5vgi	146/148
vk4ua	143/145
vk4aar	140/142
vk7dq	131/132
vk2tb	123/125
vk7cq	120/122
dk6ap	120/
sp1afu	112/113
vk8kv	112/113
vk5bww	110/111
vk6nv	109/110
ok1fed	109/
vk2fym	106/108
vk4cxq	106/
vk4ems	104/
vk3dg	102/
vk8xc	101/103
sm6prx	101/102

Open

Roll of Honour Open

vk5wo	331/368
vk6hd	331/358
vk4ua	331/347
vk3qi	331/346
vk6ru	330/385
vk4lc	330/377
vk3akk	327/338
vk7bc	327/336
vk4aar	324/328
vk6amk	322/341
vk2avz	320/330
vk3uy	318/321
vk3ji	315/344

Ordinary list Open

vk4lv	311/315
vk4dp	309/323
vk6ro	309/315
vk4dv	306/321
vk3dp	304/308
vk4icu	303/305
vk4cy	297/301
vk4bg	293/312
vk3cyl	282/288
vk3vq	274/291
vk3cim	274/278
vk5bo	264/302
tf5bw	260/264
py2dbu	254/259
vk7ts	252/254
vk6mk	250/252
vk6anc	247/250
vk3dq	246/275
vk5uo	248/250
vk2cws	245/247
vk6apw	239/240
vk2etm	238/240
vk2hv	235/
vk4da	234/236
vk4xj	233/249
vk4ems	223/
wa5vgi	216/218
vk2eft	202/205
vk5gz	198/200
vk3dnc	185/187
vk6aph	171/172
9a4ka	168/
sm6prx	162/169
vk4chb	160/162
vk2no	158/
vk8xc	150/152
vk4ems	150/
vk6lc	142/144
vk4njq	133/139
vk4ez	129/138
yb8gh	127/129
vk3vb	126/128
vk7cq	123/125 qrp
vk7hv	114/117
sp1afu	114/115
vk3oz	104/105
vk2aje	100/

CONTESTS

Ian Godsil VK3DID
57 Nepean Highway, Aspendale, 3195
Phone: 0408 123 557 Email: contests @wia.org.au

Contest Calendar August - October 2000

Aug 5	SARS Sprint Contest	(CW)	(Jun 00)
Aug 5	Waitkere Sprint	(CW)	(Jun 00)
Aug 5/6	Worked All Europe DX Contest	(CW)	
Aug 12/13	Keymen's Club of Japan Contest	(CW)	
Aug 12/13	RD Contest	(CW/SSB)	(Jul 00)
Aug 19/20	SEANET SSB Contest	(Jun 00)	
Aug 26/27	SCC RTTY Championship	(Aug 00)	
Aug 26/27	TOEC WW Grid Contest (CW)		
Sep 2/3	All Asia DX Contest (Phone)		
Sep 2/3	IARU Region 1 Field Day	(SSB)	
Sep 3	Panama DX Contest	(SSB)	(Aug 00)
Sep 9/10	Worked All Europe	(Phone)	
Sep 16/17	SAC Contest	(CW)	(Aug 00)
Sep 23/24	CQ WW RTTY DX Contest	(Aug 00)	
Sep 23/24	SAC Contest	(SSB)	(Aug 00)
Oct 1	RSGB 21/28 MHz Contest	(SSB)	(Aug 00)
Oct 7	PSK31 Rumble		
Oct 7/8	VK/ZL/Oceania DX Contest	(SSB)	
Oct 8	RSGB 21/28 MHz Contest	(CW)	(Aug 00)
Oct 14/15	VK/ZL/Oceania DX Contest	(CW)	
Oct 15	Asia-Pacific Sprint	(CW)	(Jan 00)
Oct 21/22	JARTS WW RTTY Contest		
Oct 21/22	Worked All Germany Contest	(CW/SSB)	
Oct 28/29	CQ WW DX Contest	(SSB)	

Thanks this month to VK4TI JE1CKA LA9HW RSGB

Greetings to all contestants. I hope that you are all well and that your station is performing up to its optimum. We are now well into the VK contesting season and I hope to hear you all in the RD contest about the time that this magazine will arrive.

A few general comments——-

I am always interested to scan the bands during a contest to gauge the level of participation, whether I am an entrant or not. I would like to record my thanks to those who made the effort in the QRP Day and Novice Contests in June, especially on the CW mode. In the latter event I must commend particularly VK3JRC for consistent calling on CW and for reaping the rewards of many contacts. I was calling just as much lower down, but came to the conclusion that no-one wanted to talk to me as I was just a Full Call! To all those who took the trouble to call repeatedly (VK3YE, VK2BHO, VK5XE, VK2MQU et al.), very well done and thank you. I hope that the SSB operators did as well.

New Exchange - Revisited

No sooner had I sent last month's copy to the Editor than I received several notes opposing the dropping of RS(T) from contest exchanges. The common point raised was that the signal report may be needed for any new DX countries.

I thank these correspondents most sincerely. However, I can say that the ARRL has not asked for RS(T) for many years. I am trying to ascertain if that applies to other major AR societies or not.

When you think about it, Australia, New Zealand and America have many smaller local contests and only a few DX events, whereas Europe has international contests every weekend. Probably I fell into the trap of thinking locally and was happy to agree with those who responded originally to the suggestion of just serial numbers.

In the purely local context no doubt serials only will be fine. Perhaps the DX tests may do well to retain the full exchange.

Then there is the habit of logging programs of allocating 59(9) to a contact automatically. All we have to do is add the serial, so why the RS(T)?

RD 2000 - Not Just for CW and phone

PLEASE join in this year's Remembrance Day contest on 12/13 August. Everyone's score counts - and you need the full RS(T) and serial number! Let's have a good representation from all States. After

all, you will be helping yourself as well as your State!

And don't forget that CW and Phone are NOT the only modes allowed. See Rules in July page.40

WRTC 2000

By the time you read this, the international WRTC 2000 event will be over (see references in June and July). However, at the time of writing those comments I was unaware that as well as the contestants VK4EMM and VK4XY, Bernd VK2IA also went along as a Referee. I hope to bring you some results in the near future.

VK2SKY

I would like to thank Richard VK2SKY for his help over recent years in publicizing contests on the WIA Federal web site.

I am no computer expert, but I can see that maintaining a web site must be a difficult and time-consuming task. Coupled with his job of seeking current news items for this magazine each month, he must have been very busy indeed! Anyway Richard, sincere thanks from me. I am sure that the Institute will be the poorer, but whatever you do next will benefit.

AX Callsigns

Most of you will be aware that since mid-June we have been permitted to use the aternative callsign prefix "AX". I am sure that serious DXers have used it well already; however, I suggest that those of you taking part in a contest where there is a reasonable chance that you make some international contacts will consider using this prefix.

The DX stations will be happy to have the call in their logs, BUT please also be prepared to QSL any such contacts made.

CU in a contest. 73, Ian Godsil VK3DID
E-mail: <contests@wia.org.au>

Results CQ/RJ WW RTTY 2000 Contest

(Call\cat\score\award)

- VK4UC SOABH 617320 1st VK4 Plaque OC
- VK6GOM SOABH 150656 1st VK6
- ZL6QH SOABH 406980 1st ZL

Results Harry Angel Sprint 2000

from Trent VK4TI,
WIAQ Contest Co-ordinator

This sprint contest, which is open to all Amateur Stations and SWLs, honours the late Harry Angel VK4HA. Harry who passed away at the age of 106 in 1998 was at the time Australia's oldest living Radio Amateur. Harry served in the Middle East and other areas during the First World War. The Sprint will be unique, as it will last for 106 minutes, Harry's Age, in place of the customary 60 minutes.

The very best of wishes for your 'sprint' event ... what a character he must have been ! I can just remember (40 years ago) old Cliff G2RU and Jimmy G6LL telling me how they'd started, at the beggining of the 'last' century .... without them we'd still be waving flags at each other ! Good Luck G3RXO

This sums up the importance of remembering the likes of Harry Angel.

What a great turnout of logs totalling 29 this year. The popularity of the format is evidenced by the scores. For the second year the top dog and **winner of the perpetual trophy** was **John VK5NJ** with a great effort in scoring 56 points, with another VK5 **winning the Phone section** in the shape of **super club VK5SR** South East Radio Group in Mt Gambier. **Kevin VK5KJ** handled the 100 foot high dipole FL2100B TS930 combination with expertise and handed out 49 QSOs in the allocated time. A great result for a great location (SA).

Alan VK4SN grabbed the opportunity to push the barrow for VK4 and took away the top score in the mixed category on 45 points claimed. Toowoomba DX buff Mick VK4ABV cranked up his trusty TS530 into second place, after forgetting that the contest was on and giving others a head start.

This is now the second year of the test and the results show that interest is high. The most common request is to make the contest start time earlier. The format of 106 minutes was questioned by some but the validation for it will stand the contest in good stead.

Thank you again for your participation and thank you to everyone for supporting VK4 contesting

Trent VK4TI

Certificates will be despatched by the first week of August. If you do not receive yours, contact me direct on email llfp-vk4ti@powerup.com.au or phone 0408 497550 *Error! Bookmark not defined.*

Comments from the Logs

VK5XE Ian Northeast

Thanks for the contest it was a bit of a lonely affair after the first 45 minutes but had fun and not much QRM.

VK3DID Ian Godsil

I thought there was fair representation of CW for this event , but was disappointed at not hearing any other VK3s on this mode

VK4EJ Bernie McIvor

Thank you for sponsoring another Harry Angel Sprint Unfortunately the activity was lacking, but I could not (out of respect for Harry) let it go without entering. Harry once lived down the road from my mother at Ennoggera QLD He introduced my uncle VK5LJ to radio and VK5LJ introduced me to radio, so Harry is indirectly responsibl for my passion. I was lucky enough to have worked Harry on ten metres way back in 1983 when he told me he was 91 years young. I feel honoured to have him in my log.

VK4SN Alan Shannon

Both the hand key and the iambic keyer were "joined at the hip" and ready for action. A set of headphones kept concentration at maximum.

VK5NJ John Nieuwenhvivon

Tnx for a great little sprint contest. Enjoyed it very much ,was surprised on working JAs.

continued next page

VK4GZ Ron Marschke

The numbers where few but I enjoyed the contest

Callsign	Category	Certificates	Score
VK5NJ Trophy	C	1	56
VK4OW	C	2	28
VK3DID	C	3	26
VK4XY	C		26
VK5XE	C		26
VK8HA	C		20
VK4TT	C		12
VK4SN	M	1	45
VK4ABV	M	2	36
VK4GZ	M	3	35
P29PL	M		29
VK5UE	M		23
VK5SR	P	1	49
VK2CA	P	2	42
VK4AJS	P	3	36
VK4EJ	P		33
VK3VDP	P		24
VK5AIM	P		23
VK7JGD	P		21
VK3MGZ	P		19
VK4KKN	P		19
P29KFS	P		17
VK4KDL	P		16
VK7JAB	P		14
VK7LUV	P		14
Ian McGovern	swl	1	29
John Ramsay	swl		11
Tony Dawson	swl		10

Results: Ross Hull Contest 1999 - 2000

Panama Anniversary Contest

3 September, 1200 - 2359z Saturday

The Panama Radio Club invites all radio amateurs to participate in its annual contest.

Category: The only category is Single Operator.

Mode: SSB.

Bands: 40/20 m.

Exchange: RS plus serial number.

Score two points for QSOs with HP stations and one for others.

Multiplier is the total DXCC countries worked on all bands. Various plaques and certificates of participation will be awarded, including a plaque to the highest scoring station in each continent.

Send log postmarked by 27 November to: Radio Club Panama Contest, Box 10745, Panama 4, Panama, or via packet to HP1BYS@HP1BSL.PANCTY.PAN.CA, or via e-mail to: hp1rcp@qsl.net

Scandinavian Activity Contest

CW: 16 - 17 September Phone: 23 - 24 September
1200z Saturday - 1200z Sun

Object is for amateurs world-wide to contact as many stations in Scandinavia as possible, on bands 80 - 10 m (no WARC). Scandinavian prefixes are: LA/LB/LG/LJ (Norway); KW/JX; OF/OG/OH/OI (Finland); OF0/OG0/OH0 (Aland Isl); OJ0 (Market Reef); OX/OY; OZ/5P (Denmark); SI/SJ/SK/SL/SM/7S/8S (SWEDEN); TF.

Categories (all bands only) are: single operator; single operator QRP (max 5 w o/p); multi-operator single transmitter; SWL.

Exchange: RS(T) plus serial number starting at 001.

Score: For each QSO, score one point on 20, 15 and 10 m, and three points on 40 and 80 m.

Multiplier is the number of call areas (0- 9), not prefixes, for each Scandinavian country worked on each band. Portable stations without a district number count as area 0, eg G3XYZ/LA counts as LA0. OH0and OJ0 are separate call areas.

Final score is total QSO points (all bands) times total multipliers (all bands).

Use standard format for logs and summary sheets. Show duplicate QSOs with 0 points. **Dupe sheets** are required for 200+ QSOs.

Send separate logs for CW and phone sections.

Logs on 3.5" DOS disc are welcome and must be in ASCII, one QSO per row, and labelled with the call, contest name, section/s and contest date. Include an SASE if you want your disc returned.

Summary sheet must be on paper. The mailing address alternates between SSA (Sweden), NRRL (Norway), EDR (Denmark) and SRAL (Finland) in that order.

Send logs: For 2000, send your log postmarked by 31 October to: J-E Rehn, Lisataet 18, SE-863 32, Sundsbruk, Sweden, or by e-mail to: sac@contesting.com

CQ/RJ WW RTTY Contest

23 - 24 September, 0000z Sat -2400z Sun

Object is to contact as many stations world-wide as possible using digital modes [Baudot, ASCII, AMTOR (FEC and ARC) and packet] on **bands** 80-10 m. No unattended operation or operation through gateways or digipeaters, etc.

Stations may operate for full 48 hours.

Categories are: single operator unassisted, single and multi-band; single operator assisted, all band; multi-operator single Tx, all band ("10 minute" rule applies to this category, *except* that one - and only one - other band may be used during the 10 minute period if - and only of - the station worked is a new multiplier); multi-operator multi-Tx, all band. Single operator entrants can enter the low power section (up to 150 W) or high power (more than 150 W). Stations may be contacted only once per band, regardless of the mode used.

Exchange: RST plus CQ zone; W/VE will send RST, state or area, and CQ zone.

Score: one point for each QSO with stations in your own country, two points for each QSO outside your own country but inside same WAC continent, and three points for each QSO with stations outside your own continent. On each band the multiplier equals the sum of US states (Max 48) and Canadian areas (max 13) PLUS DXCC countries (including W and VE) PLUS CQ zones (max 40). Note: KL7and KH6 are claimable as country multipliers only, not state multipliers.

Canadian areas are VO1, VO2,VE1 (NB), VE1 (NS), VE1 (PEI), VE2, VE3,VE4, VE5, VE6,VE7, VE8, VY.

Final score equals total QSO points times total multipliers from all bands.

Submit a single summary sheet including scoring calculations for all bands, plus for each band a separate log, duplicate ckeck list, and multiplier check sheet

Send low power logs postmarked by 1 December to: , CQ WW RTTY Contest Director, Box DX, Stow, MA 01775, USA. Low power logs may be sent by e-mail to: k1ry@contesting.com

Send high power logs to: Ron Stailey K5DJ, CQ/RJ RTTY Contest Co-Director, 504 Dove Haven Drive, Round Rock TX 78664-5926, USA. High power logs by e-mail to: k5dj@contesting.com

A comprehensive range of plaques and certificates is offered.

SCC RTTY Championship

26 - 27 August 1200z Sat - 1200z Sun

Object: for amateurs around the world to contact as many other amateurs as possible.

Mode: Baudot.

Bands: 80 - 10 m (no WARC).

Categories: Single operator single band; single operator all bands; multi-operator all bands.

Sections: High power (200 w o/p or more); Low Power (less than 200 w o/p).

Exchange RST plus four digits of the number of the year your amateur licence was FIRST issued.

Score: one point for QSO in own call area; two points for QSOs with other Oceania call areas; three points for QSOs outside own continent.

Multiplier: one point for each different licence year worked on each band.

Final Score is total QSO points X total multipliers on all bands.

Logs must show time UTC; band; callsign; exchange; points claimed; multipliers at first time of working.

Summary Sheet should show callsign; address; number of QSOs; points and multipliers for each band; total score; signed declaration.

Send logs in written form or on disk to: Slovenia Contest Club, Saveljska 50, 1113 Ljubljana, Slovenia. Logs may be sent by e-mail to: scc@hamradio.si

All entries by 1 October.

RSGB 21/28 MHz Contest

SSB: Sunday 1 October 2000
CW: Sunday 8 October 2000
0700 - 1900z

Frequencies: SSB 21.150 - 21.350, 28.450.29.000 MHz CW 21.000 - 21.150 (but avoid 21.075 - 21.125) 28.000 - 28.100 MHz

Categories: Single operator; multi-operator

Sections: Open; Restricted; QRP (max 10w o/p); SWL

"Restricted" entrants must use only one single element antenna at not more than 15 metres height and 100 w o/p. Any packet cluster or other spotting facilities makes an entrant multi-operator.

Score three points for contacts with UK stations.

Multiplier is each UK district (max 124) worked on each band.

Send logs by mail to: RSGB Contest Committee, c/o 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, UK, by 15 November, 2000.

50TH Annual Ross Hull Memorial VHF-UHF Contest: Results

Contest manager: John Martin VK3KWA

Interest in the Ross Hull Contest seems to be increasing after a slump in recent years. This year there were 26 logs from 20 entrants, which is very much better than last year and a good omen for the future.

The main reason for the improvement seems to be the return to scoring based on the best seven days. All comments on this change were favourable. The two-day section was also well received, and I expect that this section will become more popular over the next few years.

It was good to see a considerable increase in the number of logs from VK2 and VK4. But the other side of the coin was only one log from VK6 and none at all from VK5.

Speaking of logs, please remember to include the band-by-band scoring table as described in the rules. Otherwise it takes a good deal longer than it should to get the results finalised.

Now to the business end. This year's winner is **Rob VK3EK**, followed very closely by **Gordon VK2ZAB**. Congratulations to Rob and Gordon for their excellent scores.

There was an even closer contest for third and fourth place, this time with only four points between **Rod VK2TWR** and **Guy VK2KU**.

Two special mentions: **Roger VK3XRS** earns my Lazarus Award for making a comeback this year and operating on seven bands. And **Ray VK3ACR** gets my special Octopus Award for operating on eight bands including 24 GHz.

In the two day section, the winner is **Guy VK2KU**, followed by **Rod VK4KZR**. The other entrants in the two day section all had very good scores, so congratulations all round.

As usual, thanks to all those who sent in logs. Now the contest seems to be on the way up again, I hope to see even more logs next time.

Continued on page 43

International Lighthouse/Lightship Weekend

A list of stations that have already confirmed their participation in this year's event can be found at www.waterw.com/~weidner/LH-day-table.htm

Callsign	Location	QSL information
Argentina		
LU2DT	Punta Mogotes, Mar del Plata	
LW4EM	Puerto Quequen	PO Box 115, CP7630, Necochea
Australia		
VK2GLH	Greencape, NSW	PO Box 300, Merimbula 2548
VK3JKY	Cape Ottway	Buro
VK4CHB	Sandy Cape, Fraser Island	PO B 829, Hervey Bay, Qld 4655
VK7WS	Bruny Island	CBA
VK7KBE	Eddystone	Buro
VK7JAB	Table Cape	Buro
VK7LUV	Table Cape	Buro
Belgium		
OR0OST	Lange Nelle	PO Box 110, 8300 Knokke
ON4BRN	Lightship Westhinder II	
ON9CAT	Blankenberge	PO Box 90, 9900 Eeklo
Brazil		
PY1NEZ/P	Farokl de Ponta Negra	QSL via PY1NEZ
Canada		
VE3CGJ	Lightship HMCS Haida	QSL via VA3BBW
VE3TEQ	Snug Harbour	Buro
VE7IV	Cape Beale. B.C.	Cape Beale Lightstation, Bamfield BC
VOR1BO		
Chile		
CE1RKV	Faro Punta Gruesa	PO Box 700, Iquique, Chile
Denmark		
OZ7DAL	Lightship XXI	Buro
OZ1VYL	Lightship M/F 1	Buro
OZ7RJ	Lightship F/S XVII	Buro
OZ1SKA	To be confirmed	Buro
OZ1VES	To be confirmed [EU-029]	Buro
OZ1LFA	To be confirmed [EU-029]	Buro
OZ2NYB	Romsoe	Buro
OZ3EVA	To be confirmed	Buro
OZ3FYN	To be confirmed [EU-029]	Buro
OZ4SKL	To be confirmed [EU-029]	Buro
OZ4EDR	Bornholm Island [EU-030]	Buro
OZ5V	To be confirmed [EU-029]	Buro
OZ7LH	Sletterhage	Buro
OZ7RD	To be confirmed	Buro
OZ7TOM	To be confirmed	Buro
OZ7TP	Nr. Lyngvig	Buro
OZ8KV	Nr. Lyngvig	Buro
OZ8SMA	To be confirmed	Buro
OZ9HBO	To be confirmed	Buro
Eire		
EJ/GI3VFW	Tory Island	Buro
EI5ML	Mizen Signal Station EI5IY	
EI8HT	Youghal	
EI8HT		
England		
GB2APL	Anvil Point	Buro
GB2BHL	Bidston Hill	Buro
GB2BPL	Bull Point	Buro
GB2NBL	New Brighton	Buro
GB2PB	Portland Bill	Buro
GB2PL	Pendeen	QSL via M5DID
GB2RL	Roker Lighthouse	QSL via M0AYI
GB2SML	St Marys, Whitley Bay	Buro
GB2WL	Whitehaven	QSL via M0BEE
GB0SBL	Sutton Bridge	QSL via G4PQL
GB0SCA	Scarborough	QSL via G0OOO
GB0SL	Spurn Lightship	Buro
GB0SLH	Souter, Whitburn	Buro
Falkland Islands		
VP8LGT	Cape Pembroke [SA-002]	QSL via VP8ON
Faroe Island		
OY6FRA	Havni Skansa	QSL via OY6FRA
Finland		
OH1AH	Uto Island	Buro
OH5AD	LightshipHelsinki, Hamina	Penttilankuja 13, 49420 Hamina
OH6AI	Tankar, Kokkola	PB 251, 67101, Kokkola
France		
F6KUM	Dieppe	Buro
Germany		
DF0WLG	Greifswalder Oie [EU-057]	Buro
DL0SH	Kiel Lighthouse	QSL via DH3CH
GIBRALTAR		
ZB2LGT	Europa Lighthouse	PO Box 292, Gibraltar
Greece		
SW8LH	Santorini Island	QSL via SV1ENG
Isle of Man		
GT3FLH	The Point of Ayre	Buro
Italy		
IQ1L	La Lanterna, Genova	POB 347, 16121 Genova

Lithuania

LY1CM/A	Cape Vente	QSL via LY1CM

Netherlands

PA6VEN	Ven	QSL via PD1AIQ
PA6LH	Egmond-aan-zee	Buro
PA6LST	Lightship Texel	QSL via PI4ADH
PB6KW	Katwijk aan Zee	QSL via PA3HDX
PI4WAL	Westkapelle	Buro

New Caledonia

TX8AL	Amedie Light, Noumea	QSL via FK8FR

New Zealand

ZL1AB	Tiritiri Matangi Island	Buro
ZL2ARG	Nelson	PO Box 414, Nelson
ZL2AFZ	Quartz Hill, Oahu Point	
ZL2AS	Cape Kipnappers	PO Box 15038, Flaxmere, Hastings, 4201
ZL6LH	Castlepoint	PO Box 397, Papakura

Northern Ireland

GN0LIX	Ferris Point, Larne	Buro
GI4GTY	Mew Island, Copeland Islands	Buro

Norway

LA3S	Svenner [EU-062]	Buro
LA5D	Jomfruland [EU-062]	Buro
LA5F	Stroemtangen [EU-061]	Buro
LA6LI	Lista	Buro

Poland

SN2KM	Krynica Morska	QSL via SP2BIK
SP5PB/1	Swinoujschie	Buro
SP2FWC/2	Rozewie	Buro

Portugal

CS5C	Faror Forte do Cavalo	QSL via CT1BWW

Puerto Rico

KP4ES	Caja de Muertos Island	Box 191917, San Juan. PR 00919-1917

Scotland

GB2LBN	Barns Ness	QSL via GM4UYZ
GB2LMG	Mull of Galloway	QSL via MM1BHO
GB2LO	Orkney Islands	Buro
GB2LT	Turnberry	QSL via GM0JHF
GB???	Carr Lightship, Dundee	QSL via MM0BTD
GB2RRL	Rubha Reigh	QSL via GM4CHX

Spain

ED3PGT	Torredembarra	QSL via EA3DGN

Sweden

7S6LGT	Vinga Islands	
7S1LGT	Hoburgen	QSL via SM1NVW
SK0BJ	Landsort	Buro
SK2AU	Gasoren	CBA

Turkey

TA3YJ		Izmir – Karaburun Buro
TA3J		Izmir – Karaburun Buro

U.S.A.

K1T	Beavertail RI	K1JD
K1L	New London Ledge CT	PO B 2644, Hartford. CT 06146-2644
N1L	Cape Neddick, ME	K7CTW
W1L	Race Point, MA	W1KSZ
W1HGY	Conspiracy Island, MA	W1HGY
KB1CEJ	Prospect Harbor, MA	KB1CEJ
WB1CQO	Nantucket Lightship CT	PO B 486, Southport, CT 06490
N2L	Navesink Twin Lights, NJ	KC2EVS
W2AMC	Horton Point, NY	POB 113, Peconic, NY 11958
K2L	Buffalo, NY	WB2YQH
N2CMC 08242	Cape May, NJ	PO Box 302, Rio Grande, NJ
W2C 08324	Miah Maull, NJ	Box 265, Heislerville, NJ
W2D	Brandywine, DE	See W2C
W2E	Elbow Cross Ledge, DE	See W2C
W2L	East Point, DE	See W2C
W2R	14-ft Light, DE	See W2C
W2S	Ship John Shoal, DE	See W2C
W2GSB/LH	Fire Island, NY	PO Box 1356, West Babylon, NY 11704
N2SEX	Thirty Mile Point, NY	AE2T
KC2UFO	Tibbetts Point, Lake Ont.	KC2UFO
K3L	Marcus Hook Range, PA	KE3RJ
W3L	Chesapeake Bay, MD	K2JXW
W3HL	Cape Hatteras, NC	
AC4RC	Oak Island, NC	
N4ZN	Morris Island, SC	N4ZN
W5L	Port Bolivar, TX	PO B 1103, Crystal Beach, TX 77650
K6AA	Point Fermin, San Pedro, CA	WB6ROH
W6L	To be confirmed	K6DF
K6L	Pigeon Point, CA	W6JZE
W6LJ	Point Vicente CA	Buro
W6RQQ	Cabrillo Nat. Monument, CA	W6RQQ
K7L	Cape Blanco, OR	W7WLL
K7AM	Agate Beach, OR	K7EWG
W7BU	Lightship Columbia	PO Box 264, Astoria 97103-0264, Oregon
W8TCM	Travers Bay, MI	2738 Ra-Wa-Si, Traverse City, MI 49684
K8BLL	Whitefish Point, MI	K8BLL
K0RT	Split Rock	K0HB

Wales

GB2LNP	Nash Point	MW0CNA
GB0WUL	West Usk	GW4LFO
GB2SAL	St Anns Head	Buro

This list is continually being updated and new stations are planning to participate in the contest and entering their details daily. To get the most up to date list a visit to the following web page is recommended http://www.waterw.com/~weidner/LH-day-table.htm

ar

AWARDS

John Kelleher VK3DP
Federal Awards Officer
4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393

Nice to be back in the driver's seat again, if only in low gear. Naturally, things will improve as time the great healer takes over. What is pleasing and of particular note is the action of Ross VK3WAC in producing an excellent column for DX operators. I definitely applaud him.

Paraguay The ZP Awards Programme

The Radio Club Paraguayo issues the following awards for any amateur, CB operator,or SWL for confirmed contacts or reports, according to the rules of each award. A contact with a ZP Station is mandatory for any award. Contacts with mobile stations (ZP0) before 1991 will be Acceptable for the awards.

All certificates are issued on a mixed basis (no band or mode separation), except for those where all Contacts were made on digital modes (RTTY, Packet, Amtor, Pactor, SSTV or any other Computer generated signal) or via satellite.

Send certified list (GCR rules) , please NO QSL CARDS, with 5 Irc's or 5 US dollars for each Award to :-

Radio Club Paraguayo
Award Manager
P.O. Box 512
Asuncion 1209
Paraguay.

The All Mediterranean Countries Award

This award is issued for contacts with inland countries, as follows : A2 A5 C31 CP EK (ex UG6) ER (ex UO5) ET EU (ex UC2) EX (ex UM8) EY (ex UJ8) EZ (ex UH8) HA HB HB0 HV JT LX OE OK OM T7 TL TT TZ UJ (ex UI8) UN (ex UL7) XT XW YA Z2 Z3 ZP 3DA0 4J (ex UD6) 4U1ITU 5U 5X 7P 7Q 9J 9N 9U 9X.

Class A: 41 countries. Class B: 30 countries. Class C: 20 countries.

The Tropics of Cancer and Capricorn Award

This award is issued for contacts with countries touched by the Tropics of Cancer and Capricorn as follows:- Tropic Cancer - A4 A6 BV BY C6 HZ KH6 SU S0 S2 TZ VU XE XZ 5A 5T 5U and 7X. Tropic Capricorn :- A2 CE C9 LU PY VK V5 ZP ZS 5R.

Class A: 28 countries. Class B: 20 countries Class C: 12 countries.

The All Zone 11 Prefixes Award

This award is issued for contacts with different prefixes of stations located in CQ Zone 11, from the following list : ZP0 – ZP9, PP0 – PP9, PQ0 – PQ9, PR0 – PR9, PS0 – PS9, PT0 – PT9, PU0 – PU9, PV0 – PV9, PW0 – PW9, PY0 – PY9, ZW0 – ZW9, ZV0 – ZV9, ZX0 – ZX9, ZY0 – ZY9, ZZ0 – ZZ9, and any special or contest prefixes.

Class Gold : 100 prefixes with at least 10 ZP prefixes.

Class Silver: 60 prefixes with at least 5 ZP prefixes.

Class A : 30 prefixes.

Class B : 19 prefixes.

Class C : 12 prefixes.

The South America Award

This award is issued for contacts with stations located in ITU Zones 12 13 14 15 16 and 73.

Zone 12 : FY HC HC8 HK HK0 (Malpelo) OA PZ 8R YV CP (1,8,9).

Zone 13 : PY (6,7,8) PY0 (F de Noronha) PY0 (St.Peter & Paul Rocks).

Zone 14 : CE (1,2,3,4,5) CE0X CE0Z CP (2,3,4,5,6,7) ZP CX LU (A-U, Y)

Zone 15 : PY (1,2,3,4,5,9) PY0 (Trinidade.

Zone 16 : CE (6,7,8) VP8 (Falkland) LU (V,W,X).

Zone 73 : KC4USP LU(Z) CE9 (AA-AM) VP8 (Graham Land) VP8 (South Georgia, South Orkney, South Sandwich, South Shetland.

Class A : 33 countries and 6 zones.

Class B : 25 countries and 6 zones.

Class C : 18 countries and 5 zones.

The Diploma Paraguay (DP) is issued to amateurs living outside of Paraguay, for confirmed contacts with 5 different ZP stations. South American stations should contact 15 different ZP Stations.

The Certificado Radio Club Paraguayo, is issued for confirmed contacts with 15 different ZP Stations. South American stations should contact 50 different ZP stations.

The Worked All ZP Award is issued for confirmed contacts with one station in each of the 9 call areas (ZP1 to ZP9). Special, or contest prefixes are not valid for this award.

The ZP100, ZP150, ZP200, ZP250, ZP300, ZP350, ZP400, ZP450, and ZP500 Awards are Issued for confirmed contacts with such amount of different ZP stations.

The ZP3 Award is issued for confirmed contacts with different stations located in the third call area (ZP3), as follows :-

ZP : 10 stations.

CE CP CX LU PY : 5 stations.

Rest of the world : 2 stations.

The Mercosur Prefixes Award is issued for confirmed contacts with stations located in the countries which are part of the Mercado Comun del Sur MERCOSUR Trade agreement (LU – Argentina, PY – Brasil, ZP – Paraguay and CX – Uruguay), after January 1 1995. At least one prefix of each country is required. Special events and contest prefixes are acceptable for this award.

Class A : 60 prefixes.

Class B : 40 prefixes.

Class C: 20 prefixes.

The Certificates Departamentos del Paraguay, is issued for contacts with one fixed or portable

Station located in the nation's capital city, and each of the following departments into which Paraguay is divided :

Call area	Depart-ment	Capital City:
• ZP1	XVI	Boqueron Filadelfia
	XVII	Alto Paraguay, Fuerte Olimpo
• ZP2	XV	Presidente Hayes, Pozo Colorado
• ZP3	I	Concepcion, Concepcion
	XIII	Amambay, Pedro Juan Caballero
• ZP4	II	San Pedro,San Pedro del Ycuamandyju
	XIV	Canindeyu, Salto del Guaira
• ZP5		Capital City of the Country Asuncion
• ZP6	III	Cordillera, Caacupe
	IX	Paraguari, Paraguari
	XI	Central, Aregua
• ZP7	IV	Guaira, Villarrica
	V	Caaguazu, Coronel Oviedo
	VI	Caazapa, Caazapa
• ZP8	VIII	Misiones, San Juan Bautista
	XII	Neembucu, Pilar
• ZP9	VII	Itapua, Encamacion
	X	Alto Parana, Ciudad del Este

Class A : 18 depts.

Class B : 15 depts.

Class C : 12 depts

The ZP1 Award is issued by The Radio Club Filadelfia – ZP1FF (an RCP affiliate) for Confirmed contacts with different ZP stations located in the first call area (ZP1). A contact with ZP1FF is mandatory. South American stations should contact 30 stations. Rest of the World - 10 stations.

The Fortines del Chaco Award, is issueed by the Radio Club Filadelfia for confirmed contacts With stations located in the following Chaco War forts (outposts) : Boqueron, Pitiantuta, Toledo....145 160 and 180 Km; Guachalla, Lagerenza, Campo Via, Nanawa, Trebol, Isla Pof, Tte, Montania, Camacho (Mcal.Estigarribia) Tte Enciso, Tte Martinez, Tte Rojas Silva. The Contact with Fort Boqueron is mandatory. South American stations should contact 8 forts. Rest of the world – 4 forts.

This is the complete ZP Awards Programme.

Good Hunting es best 73 de John, VK3DP.

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Continued from page 39

Ross Hull Contest 1999 - 2000 : Results

Section A: Best 7 Days

Call	Name										
VK3EK	R. Ashlin	376	1212	1525	598	110	70	-	70	-	3961
VK2ZAB	G. McDonald	37	1386	1395	1040	-	-	-	-	-	3858
VK2TWR	R. Collman	33	938	915	336	-	-	-	-	-	2222
VK2KU	G. Fletcher	41	1257	600	320	-	-	-	-	-	2218
VK3XRS	R. Steedman	68	617	675	326	30	30	-	30	-	1776
VK4KZR	R. Preston	-	291	455	504	10	-	-	-	-	1260
VK3ACR	R. Cowling	139	216	230	288	130	-	20	70	30	1123
VK3KAI	P. Freeman	7	411	315	184	40	40	100	-	-	1097
VK4TZL	G. McNeil	180	354	325	48	-	-	-	-	-	1007
VK3BJM	B. Miller	22	390	415	160	-	-	-	-	-	987
VK3CAT	T. Middleditch	106	462	335	-	-	-	-	-	-	903
VK3GK	L. Moyle	27	237	270	192	-	-	-	-	-	726
VK7XR	A. Hay	89	237	260	40	-	-	-	-	-	626
VK4BLK	R. Elliott	143	138	170	-	-	-	-	-	-	451
VK3CY	D. Clarke	-	195	230	16	-	-	-	-	-	441
VK2TG	R. Demkiw	89	189	-	-	-	-	-	-	-	278
VK6KZ	W. Howse	-	84	-	8	-	-	-	-	-	92
VK2CZ	D. Burger	Check log									

Section B: Best 2 Days

VK2KU	G. Fletcher	9	408	190	64	-	-	-	-	-	671
VK4KZR	R. Preston	-	102	150	176	10	-	-	-	-	438
VK4TZL	G. McNeil	134	108	105	48	-	-	-	-	-	395
VK3CAT	T. Middleditch	22	201	145	-	-	-	-	-	-	368
VK3GK	L. Moyle	14	105	115	104	-	-	-	-	-	338
VK3CY	D. Clarke	-	117	105	16	-	-	-	-	-	238
VK4BLK	R. Elliott	24	78	40	-	-	-	-	-	-	142
VK2TG	R. Demkiw	36	84	-	-	-	-	-	-	-	120

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SHOP 8, 41 BATHURST ST, GREYSTANES,
N.S.W. 2145. FAX (02) 9688 1995

RMB 1627 Milawa Vic 3678 Email vk3jt@amsat.org

The AMSAT organisation

AMSAT (Amateur Radio Satellite Corporation) is a worldwide organisation with its roots in the USA. Its origin can be traced back to 1958, just a year after the launch of Sputnik-1. Since that time AMSAT members have been involved in the design, building, launching, commissioning, upkeep and of course, the day-to-day use of amateur radio communication satellites. The parent body is AMSAT-NA (North America) and many other countries have similar special interest groups operating.

AMSAT-Australia

Our local organisation is known as AMSAT-VK. The National Co-ordinator is Graham Ratcliff VK5AGR.

Membership of AMSAT-Australia

AMSAT-Australia operates an open membership system. No formal application is necessary and no membership fees apply. From time to time new software, firmware and hardware is developed and distributed through AMSAT-VK channels. Write to the co-ordinator to express your interest or pop up on the HF net.

AMSAT — Australia HF net

The AMSAT-Australia net meets formally on the second Sunday evening of the month. During the winter months in South Australia (end of March until the end of October) the net meets on 3.685 MHz +/- QRM at an official start time 1000utc with early check-ins at 0945utc. During the summer months when daylight saving is in operation in South Australia (end of October until end of March) the net meets on 7.068 MHz +/- QRM at an official start time of 0900utc with early check-ins at 0845utc. The times and frequencies have been chosen as the best compromise for an Australia-wide net taking into consideration seasonal propagation changes and the various state summer time variations. The net is open to all amateurs, beginners or experienced who have an interest in amateur radio satellites. Help and information for beginners in particular, no matter how trivial, is freely and cheerfully available on this net.

The AMSAT Journal

An excellent bi-monthly journal is available with formal membership of **AMSAT-NA**. It contains details of practical projects and ranges over all aspects of amateur radio satellite operations. As of 01Jul00 the cost of **AMSAT-NA** annual membership will be U$45 payable to **AMSAT-NA** 850 Sligo Ave, Silver Spring, MD 20910-4702 U.S.A. or you can phone, fax or email your subscription using your credit card. The phone number is 0011-1-301-589-6062, the FAX number is 0011-1-301-608-3410 and the email address is martha@amsat.org

All Communications regarding any matters mentioned above should be addressed to:

AMSAT-Australia.
GPO Box 2141, Adelaide, SA. 5001.
email, vk5agr@amsat.org

Passing of AMSAT Stalwart

On 13th June 2000 the entire AMSAT community grieved with the news of the passing of Werner Haas DJ5KQ, vice president of AMSAT-DL. Werner was one of the leaders in the design, development and construction of all phase-3 satellites. Phase 3A met an untimely end when a launch rocket veered off-course and sent it plummeting into the ocean. Despite this set back the team kept at it and phase 3B was more successful. The orbit was not quite as planned but the satellite (oscar-10) is still providing good contacts some 15 years later. Phase 3C was next in line and went on to become oscar-13. It was the flagship of the fleet for many years. Phase 3D, a much more sophisticated satellite than any of the above is due for launch in Aug/Sep this year. Werner played a crucial role in the design, building and commissioning of all these satellites. From an early age his fascination with radio began to shape his business and professional career. In 1965 Werner began an association with the University of Marburg where in collaboration with Karl Meinzer DJ1ZC et al, he became a key member of the design team that have given us all of the phase-3 satellites. Although not well, Werner recently traveled to Orlando to perform the final acceptance tests on Phase-3D. This gave him the satisfaction of knowing he had done all in his power to assure the success of the whole mission. Sadly Werner did not live to see the launch of his beloved Phase-3D. His untiring contributions will live on in the hearts of all at AMSAT. Werner was one of the true heroes of the amateur radio satellite community.

Another "First" for Phase 3D.

The following will give readers an idea of the level of sophistication of the phase 3D satellite. It was taken from a document circulated via AMSAT-DL and appearing in the AMSAT-DL Journal, 1/2000. Don Moe, KE6MN/DJ0HC, translated the original document

Infrared Laser on P3-D

By Karl Meinzer DJ4ZC, Dante Bauer DH2FHB, Dick Jansson WD4FAB and Hermann Günther.

Case History

In the summer of 1999 the suggestion was made to expand the P3-D satellite with one more experiment: a "downlink" at 360,000 GHz. Initially it was very unclear whether such an exotic experiment could even be built.

Nevertheless, as a "precaution" a suitable location was identified for it in the satellite and a corresponding control cable was installed. Based on weight considerations, such an experiment seemed totally unfeasible since P3-D already had problems with its mass. However, during spin balancing of the satellite in the fall of 1999, it became apparent that such a laser module would fit right where balancing weights would be required. This realization triggered the actual start of work on the laser project.

A previous physics experiment supplied two Siemens infrared lasers (SFH 482403), which generate 0.5 W output power at a wavelength of

835 nm. These components are similar in appearance to TO-3 power transistors, but have a window in the cover for the light to exit at an angle of 10° x 20°. Additionally, each component contains a Peltier cooler for holding the laser temperature at 25° C, a temperature sensor and a photodiode for monitoring the light intensity.

Link Calculations

The feasibility basis for this experiment is the power balance of the signal path. First we must determine whether enough infrared light even reaches the ground to permit the laser to be received within the capabilities available to amateurs. The computation for the link is performed in a manner similar to radio links: at a prescribed distance of the satellite from the Earth, the transmitter illuminates a certain area on the ground. A small fraction of that energy will be collected by the surface of the receiving antenna and must be strong enough to rise sufficiently above the background noise. The calculation for this requires two steps: a) determine the minimal power required by the receiver in order to demodulate the signal; b) design antenna gains for the available transmitter power in order to actually achieve the minimal power at the receiver.

For this experiment the assumption was made that a maximum data rate of only 400 bits/s could be transmitted, such as our P3-D telemetry data, and that reception would only be possible at night under a clear sky, when no significant levels of other light would interfere with reception. Under these conditions, the atmosphere will absorb nearly 30% of the light and 70% will reach the ground. One further assumption is that a receiving antenna of 10-cm diameter should just suffice.

The achievable sensitivity of the receiver depends largely on the available technology. At this point we made a somewhat exotic assumption, namely that a detector of the "photon counter" type with a high level of quantum efficiency would be used. Such detectors exist in the form of silicon avalanche photo diodes. Using such a detector, approximately 10 photons are needed for each bit. Thus a signal of 10-15 W can just be received.

(Ne = h * c / lambda * 10 * 400 bit/s)

Under the conditions just described, this means that at an average power level of 250 mW, e.g. 500 mW with 50% duty cycle for modulation, the diameter of a target area on the ground can be no larger than approximately 1,000 km, in order for the signal to still be receivable. A further calculation also shows that the sunlight reflected by the satellite is at least 10 times weaker under these conditions than the laser light and therefore causes no interference.

At a distance of 50,000 km, a target area of this diameter requires a beam divergence of approximately 1.2°. Since the available laser has a much larger aperture angle, a lens is needed. This lens initially proved to be difficult to obtain, but in December 1999 a suitable lens became available in Munich as surplus.

The module should be flight-ready by the end of March. In addition to modulation with a 400 bit/s data stream, the laser can also be keyed at a slow CW speed. Thus the laser can be observed with night vision equipment and messages could even be transmitted in Morse code.

Technical Implementation

1. Power Supply

Internally the module requires 10 V, which is switched on by the onboard computer. The IR laser module includes a power-off time delay of 5 seconds so that the laser can be keyed using the power-on signal. Thus the circuit does not need to internally restabilize (i.e. PLL) after each keying event.

2. Modulation

The engineering beacon (EB) of the satellite (400 bit/s exclusive-OR with clock) is the primary clock signal to the PLL for synchronizing all switching events. The EB signal is exclusive-OR combined with a 1600 Hz carrier signal. This modulation allows various improvements in the receiver design.

3. Laser Signaling

The laser is kept in the "on" state with a constant current from a switching regulator running at 50 kHz. This power converter is blocked for the "off" state. The converter is fast enough to follow the keying signal without significant flank degradation.

4. Peltier Cooler

Another power converter provides current to the cooler. This current is controlled in accordance with the temperature of the laser. The temperature sensing is done by an NTC, which is built into the laser component.

Specifications

Frequency: 360,000 GHz_ (approx. 835 nm)

Output Power: 250 mW average, 500 mW peak @ 50% duty cycle

Modulation: 1600 Hz square-wave carrier, BPSK modulated at 400 bit/s, same as P3-D telemetry.

Radiation Properties:

a) Radiated direction: Z axis of the satellite

b) Radiated shape: approximately elliptical with 1/30 Rad width_ (3 dB) in the plane of the satellite X axis. 1/50 Rad width_ (3 dB) in the plane of the satellite Y axis.

c) Effective radiated area: 1/2000 sr (approx. 41 dBi "antenna gain")

d) Polarization: linear, E direction parallel to the satellite X axis_

e) Spectral properties: multimode, approx. 2 nm bandwidth

These characteristics have not yet been finalized and are subject to change. Updates will be published later.

Outlook

Naturally the laser experiment will primarily attract the experimenters among the amateurs. Due to the relatively small area of the illuminated zone on the ground, the operational times and the target zones must be predetermined and publicised.

In accordance with the schedule, the onboard computer will aim the laser at the location on the ground by correspondingly altering the satellite's orientation.

After gaining some operational experience in orbit, we can decide whether sufficient signal strength is available at apogee. If not, the laser operating times can be moved to orbit intervals when the satellite is closer to the Earth. Of course the illuminated area on the ground will then be smaller.

Altogether we hope that the infrared laser in P3-D will offer additional interesting possibilities for experimentation. To our knowledge this will be the first laser downlink from a satellite.

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VHF UHF an expanding world

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GippsTech 2000 Symposium

The WIA (Vic) Easter Zone Amateur Radio Club held the 3rd Technical Symposium, aptly named "Gippstech 2000" at the Monash university campus at Churchill, Victoria on the 8th and 9th of July, 2000. This year I had a chance to attend both days. Approximately 60 Amateurs and partners descended on Churchill from many parts of VK3 and VK5. Rex VK7MO, Rod VK4KZR and Wally VK6KZ qualified as the most distant traveler's.

Various papers covering a wide variety of subjects were presented over the two days, ranging from Aircraft Scatter, PC DSP Applications, UHF Power meters, 24 GHz, Switching regulators, Amplifier Sequencing, DX Clusters and VK6KZ's Portable station just a few of the subjects covered. Partners were catered for with a guided tour of the local area and shopping. Saturday's nights dinner and after dinner session certainly will be remembered for a long time!

Peter Freeman, VK3KAI and his team are to be congratulated on what has truly become VK version of the VHF Conference / Microwave Update held annually in the US. The level of enthusiasm and audience participation was something that had to be experienced. I think everyone would have taken something new home. Hopefully more than a few people went away with enough motivation to jump into the next area of endeavour!

From feedback since the symposium, several people have expressed interest in the PC "DSP" software used by Rex VK7MO and others to monitor various beacon paths. Several others (me included!) have been playing with the software since. Beacons over 500 – 600km have been "watched" when not detectable by ear. One of the better "freeware" programs can be obtained on the web at http://www.radiodsp.com/. Just feed audio into your SB Mic or Line input from your receiver AF output. The fixed level audio output on some rigs (i.e. that used for packet radio) will give good results when coupled through a 600 ohm to 600-ohm isolation transformer. Using time integration and bandwidths around 1Hz produces useful results.

Copies of the proceedings should be available in due course, for further details or enquiries regarding next year's event, please contact Peter VK3KAI peter.freeman@sci.monash. edu.au or QTHR

1296MHz Mobile Record Claim

Rob, VK3EK has forwarded details of a 1296 MHz mobile record claim to Andrew VK7XR over a distance of nearly 412km ... "Details of the 1296MHz contact on 28-11-99 at 10.30 UTC. From the Great Alpine road North of Bairnsdale at a place called Granite Rock. Rob VK3EK\M QF32uf using 12 watts and a 1/4 wave whip on the roof of the Nissan patrol at 80 kilometres per hour. Andrew VK7XR, at Barrington QE38dq, was using a home brew Transverter and a 22 element loop yagi. Distance 411.9 km. Signals were 5x2/3 both ways. Andrew made comment that the signal had a large amount of flutter on it."

Rob VK3EK also reports on the 144.150 MHz net .. "The 144.150 net last night (21/6/00) was well attended which is pleasing. Keep up the good work .It was good to catch up with some familiar call signs and one new one last night in Brian VK3BE in the Latrobe valley. The contact of the night I think would have been Between Bill VK3AMH at Nagambi and Ken VK3DMW at Yarram as there are a lot of Mountains in the way. Well done fellers. I had 10 stations on 144MHz and 6 on 3.6500 in the log. Lets keep it up!!!" ... 73's Rob VK3EK at Bairnsdale

6 Metres

Mike VK2FLR reports 4W6UN into Sydney on (triple?) hop Es on June 21 at 0455 UTC. 4W6UN worked VK2BA and VK2FLR and was audible in Sydney for about 10 minutes at up to S7. John VK4FNQ has reported working JA stations, on 50 MHz, on several days in winter including 6 on 30/6/00, 7 on 2/7/00 and 5 on 3/7/00

VHF SWL Equinox DX Log

Todd Emslie from Ryde, Sydney has submitted a "SWL" Log for the last equinox. Of interest is the time Todd has spent identifying the various TV offsets and confirming that the MUF does indeed rise well above 54 MHz on many paths over 10,000km. Todd uses the following equipment. ICOM-R7000, D100 TV tuner, RDX UA-700 Gasfet and BF981 MOSFET pre-amps, 5el (45-60 MHz) yagi, Horiz Pol; 5 el (45-70 MHz) yagi, Vert Pol, ONKYO T909011 FM tuner, 8 el (88-108 MHz) yagis, Vert and Horiz Pol, 14 el (175-225 MHz) band 3 yagis, vertical and horizontal polarisation.

An extract from Todd's Log on 5/4/00, 2329Z 48.2396 MHz Genting Sempah Malaysia, 48.2495 MHz Limbang, 2337Z 50.0224 MHz XE1KK beacon Mexico, 2337Z 50.110 MHz KH8-NOJK - American Samoa, 50.110 MHz XE1J Mexico, 2354Z 55.2401 MHz BFO A2 Monterrey, Mexico, 0000Z 48.2499 MHz

BFO, 36.68 MHz Costa Rica, 49.750 MHz weak Program, 0105Z 50.120 MHz VR2LC Hong Kong, 48.2604 MHz BFO Thailand, 49.7584/75/7497 MHz, 0123Z 49.7584 MHz Program, 0203Z Russian: 44.45, 44.6, 44.73, 49.2245 MHz.0353Z 48.250 MHz BFO **Dubai UAE** - confirmed over phone by A.Mann (Perth) as well as at 0406Z 48.2598 MHz BFO **Teheran Iran**.

FCC Tells Amateurs to "Walk the Walk"

The FCC's Office of Engineering and Technology chief, Dale Hatfield W0IFO has predicted a bright future for Amateur Radio, but added that amateurs "will be under a certain amount of pressure" to justify their free use of the radio spectrum. As a result, he said, it will be more important than ever that ham's actually fulfill their service, good will and educational roles—not just talk about them. Hatfield offered his observations as keynote speaker for AMRAD's 25th anniversary dinner June 17 in Virginia. Hatfield told the gathering, "the key issue for the amateur service is maintaining access to an adequate amount of spectrum." While emphasizing that he was not suggesting any immediate threat, Hatfield said hams would have to do a better job of justifying their current allocations.

Hatfield said hams should actually engage in experimentation to advance the state-of-the-art, provide communication and train operators for emergencies, encourage international cooperation and good will, and offer an important technical educational outlet. "Or, to use a bit of slang, it seems to me that it will be even more important for all segments of the amateur community to 'walk the walk' not just 'talk the talk'," he said.

Hatfield encouraged his audience to explore advanced techniques that conserve spectrum, especially digital techniques. As the rest of the telecommunications world transitions to digital techniques, Hatfield said, "the amateur service will look antiquated if it is not making progress in that direction as well."

Hatfield also said software defined radios could facilitate "a new era of amateur experimentation" and, in many ways, represent "a final merger" of radio communications and computers. The text of Hatfield's prepared remarks is available on the FCC Web site at http://www.fcc.gov/Speeches/misc/dnh061700.html ARRL Letter vol. 19, no 25, dated 30th June 2000.

Gridsquare Standings June 2000

Guy VK2KU has forwarded the following Grid Square standings as of 21/6/00

144MHz Terrestrial

VK2ZAB	Gordon	69
VK3BRZ	Chas	62
VK2DVZ	Ross	54
VK2KU	Guy	53
VK3TMP	Max	53
VK3CY	Des	50
VK3EK	Rob	49
VK2FLR	Mike	47
VK3XLD	David	47
VK3ZLS	Les	42
VK3BDL	Mike	40
VK2DXE	Alan	35
VK3CAT	Tony	33
VK2MP	Rej	32
VK3WRE	Ralph	32
VK3BJM	Barry	30
VK4KZR	Rod	29
VK3KAI	Peter	28
VK6HK	Don	28
VK4TZL	Glenn	25
VK6KZ	Wally	19
VK2TZ	Dale	16
VK3TLW	Mark	16
VK6KZ/p	Wally	16
VK3AL	Alan	15
VK3KME	Chris	13
VK3DMW	Ken	11
VK7MO	Rex	11
VK2TG	Bob	8
VK6BIK	Chris	8
VK2THE	John	5
VK1WJ	Waldis	4
VK2CZ	David	1
VK2TWO	Andrew	1
VK3HZ/8	David	1

144 MHz EME

VK2FLR	Mike	85
VK3CY	Des	62
VK2KU	Guy	18

432MHz

VK3BRZ	Chas	44
VK3XLD	David	42
VK2ZAB	Gordon	40
VK3EK	Rob	28
VK3TMP	Max	25
VK3ZLS	Les	24
VK2KU	Guy	23
VK3BDL	Mike	23
VK3CY	Des	23
VK3KAI	Peter	23
VK3BJM	Barry	21
VK3WRE	Ralph	19
VK2DVZ	Ross	17
VK4KZR	Rod	14
VK3CAT	Tony	13
VK2MP	Rej	12
VK6KZ	Wally	12
VK3TLW	Mark	11
VK3AL	Alan	10
VK6KZ/p	Wally	8
VK7MO	Rex	8
VK3HZ	David	5
VK1WJ	Waldis	4
VK2TZ	Dale	4
VK2CZ	David	3
VK2DXE/p	Alan	2
VK3DMW	Ken	1
VK3HZ/8	David	1
VK3KME	Chris	1

1296MHz

VK3KWA	John	19
VK3XLD	David	16
VK3BRZ	Chas	15
VK3EK	Rob	15
VK2ZAB	Gordon	13
VK3TMP	Max	11
VK3BDL	Mike	10
VK3KAI	Peter	10
VK3WRE	Ralph	10
VK2DVZ	Ross	9
VK4KZR	Rod	9
VK2KU	Guy	8
VK3BJM	Barry	7
VK3TLW	Mark	7
VK3ZLS	Les	7
VK3AL	Alan	6
VK6KZ/p	Wally	5
VK6KZ	Wally	4
VK2DXE/p	Alan	2
VK3CY	Des	2
VK2CZ	David	1
VK2TZ	Dale	1
VK3DMW	Ken	1

2.4GHz

VK3KAI	Peter	7
VK3WRE	Ralph	7
VK6KZ	Wally	4
VK3EK	Rob	3
VK4KZR	Rod	2

3.4GHz

VK6KZ	Wally	4
VK3EK	Rob	3
VK3KAI	Peter	1
VK3WRE	Ralph	1

5.7GHz

VK6KZ	Wally	4
VK3KAI	Peter	2
VK3WRE	Ralph	2
VK6BHT	Neil	2
VK3XLD	David	1

10GHz		
VK6BHT	Neil	9
VK6KZ	Wally	5
VK3EK	Rob	4
VK2EI	Neil	2
VK3XLD	David	1
24GHz		
VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

Additions, updates and requests for the guidelines can be sent to Guy VK2KU, vk2ku@start com au, or by mail (QTHR 99+)

Microwave Primer Part Three: Microwave Evaporation Ducts

This month I am reproducing, in part, of an item written by Emil Pocock for his July 2000 QST column on Evaporation Ducts. While much conjecture exists on what occurs over our major "long paths" above 1 GHz, the following looks at the phenomena of Evaporation ducts over short to medium distances on the same frequencies.

"Most VHF operators are probably familiar with long-distance Tropospheric ducts. These natural waveguides propagate 144 MHz and higher signals a thousand kilometres and farther when large-scale weather patterns are favorable. The upper part of a duct is usually defined by a sudden increase in temperature with altitude, called a temperature inversion. Useful inversions are commonly several hundred to a few thousand metres above sea level A duct may be significantly enhanced by a simultaneous sharp decrease in water vapor content.

In contrast, evaporation ducts are formed almost exclusively as a result of sudden decrease in water vapor content with altitude Evaporation from lakes, seas and oceans causes the air just above the water's surface to become quite humid that is nearly saturated with water vapor. At a somewhat higher altitude, the air is often naturally drier. If the contrast in water vapor content between the humid air near the water and relatively drier air above is large enough, a duct may form along the boundary sufficient to trap microwave radio signals.

Evaporation ducts are almost constant features above extensive bodies of water on sunny days. Evaporation takes place faster over warmer water and thus is more conducive to the creation of ducts Nearly all evaporation ducts form between 3 and 30 metres above the water. More than half of all evaporation inversions appear between 8 and 16 metres altitude

The more elevated evaporation ducts are usually aided by of light breezes, which mix the humid air a bit higher than normal above the water's surface. Stronger winds may mix the air too much and obliterate the sharp, stable boundary between humid and dry air necessary to create the duct. Evaporation ducts are weaker on cloudy days, disappear at night, and are destroyed by rainfall

Frequencies

Evaporation ducts are shallower than the higher tropospheric ducts that commonly trap VHF signals. This makes evaporation ducts useful only in the microwave range. The most effective bands are 5.6, 10, and 24 GHz. Ducting is probably rare at 3.4 GHz, because the duct must be more elevated than what is normally observed Long-distance ducting at 47 GHz and higher may be limited by water vapor absorption, as the air within an evaporation duct is likely to be nearly saturated.

The best choice to get started using evaporation ducts is probably 10 GHz. This band provides a good compromise between optimal frequencies and available equipment. Ducting could be expected to be more pronounced at 24 GHz for the same overall station performance, but most 24 GHz stations run lower power and have poorer receivers than the typical 10 GHz rigs. Relatively fewer evaporation ducts reach the height above water level required to trap 5.6 GHz signals.

On the Beach, Microwave stations must be on a boat or set up right on the shore to get into an evaporation duct. This may not be a serious problem, since most microwave operators are prepared for portable operation. It is not clear how far from the water's edge would still be effective-perhaps no more than 10 metres or so. Some professional studies suggest that in many situations, there may be an advantage to raising antennas 3 – 10 metres above the water line and just under the duct boundary.

There are few reports of amateur microwave contacts in which evaporation ducts are suspected to have played a major role. Thus it is also not clear what distances might be possible on the various microwave bands Professional studies (mainly concerned about affects on sea-borne microwave radar) have reported ducting out to several hundred kilometers, at least. Some 10 GHz operators may have already made contacts at similar distances with the aid of evaporation ducts without being aware of it

A systematic experimental regime might start with a modest path length (say 50 or 100 km) and increase the distance as experience warrants Use night-time signal strength across the over-water paths as a standard to gauge any daytime enhancement due to an evaporation duct. If a duct is present, signal strength will be substantially greater than what standard path-loss equations suggest Try different antenna heights and locations Remember to set up at water's edge and do not get carried away with elevation above sea level-it is easy to put an antenna higher than the duct." ... courtesy of Emil Pocock and QST.

Experience, in VK with evaporation ducts, has suggested that distances that can be covered may be far greater than a few hundred km over favourable water paths!

In Closing

Much quieter on the bands, as you would expect, with winter in full swing. For the up and coming Tropo months the following may be of interest for tracking

Tropo" on the Internet at http://iprimus.ca/~hepburnw/tropo_aus.html William Hepburn, from Canada, has been a Meteorologist for 30 years as well as having a keen interest in VHF /UHF TV Dxing .. an ideal combination! It remains to be seen just how much of an indicator for VHF Ducting the map can be, so far mid winter results have tallied up with some of the over the land propagation. I have put a link to current Tropo map for VK as well as the 4 day MSL Weather maps on my Website at http://www ozemail.com.au/~tecknolt/tropo.htm

I'll leave you with this thought ...

Everything gets easier with practice . except getting up in the morning!"

Till next month

73's David VK5KK

OVER TO YOU

Note 1 Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA.

2. Some of the letters have been shortened to allow more letters to be published.

Towers - Builder Beware

Dear Sir,

Re: "Evolution of an Antenna Farm", A.R. May 2000

1 have this week received my copy of AR May 2000 and read the above article. As a professional engineer I am concerned about the design of the antenna tower featured in the article.We radio amateurs are licensed to build and experiment with radio equipment within the limitations specified by the ACA. Although antenna masts are part of our hobby, that (ACA) license does not allow us to build antenna masts and other large structures (for example large antenna dishes) without following a full design procedure. Few radio amateurs are professionally qualified to carry out such design and therefore must enlist the services of a professional engineer to carry out the structural analysis and foundation design. From the evidence of the photographs I conclude that this could not have been done. I will explain why briefly later in this letter. It is highly likely in my view that the tower is unsafe and potentially dangerous.

Why do I believe that the tower is unsafe?

Firstly the author states that the tower is home-brew.

Secondly the photographs clearly show that the tower is a space frame (that's a technical term) which uses rectangles without diagonals. Not only is the absence of diagonals unusual for space frame towers and similar structures but it means that the strength of this tower is achieved solely by virtue of the ability of the joints to transmit (bending) moments. Design of structures based on rigid joints is not uncommon, and is widely used in buildings where diagonal elements would greatly restrict the freedom to design access for doorways, liftwells, air-conditioning ducts etc. The portal frame used in sheds and ground-level workshops is an example. A disadvantage is that the structural elements are large in section , necessary to withstand the bending moments imposed by loads spread over long unsupported sections. Again the portal frame is an example. The cost of extra steel is usually offset by the simplicity and lower cost of fabrication.

Rigidly jointed structures are almost never used for towers for this reason and so they are designed as pin-jointed space frames. They are light-weight and easily erected anywhere without the assistance of heavy-lift equipment. An example is the high voltage power-line pylon. Even though the bolted joints used in these structures confer some rigidity the designer assumes that they act as pins, i.e. joints incapable of transmitting bending moment. The strength and rigidity of the structure accrues directly from the use of the simple triangle.

The tower shown by the photographs does not have joints deliberately designed to transmit bending moments more than providing for light loads. I am surprised that they survived the bending moments imposed during erection by the crane. A designer would assume that all joints are pins. He could not go further as the structure would collapse.under any load.

This is about as far as I can comment on the tower structure in question without more detailed knowledge. There is much more to the design of space frames than I have indicated above, but there is no need to do so for the purposes of this letter and the argument I present.

Of course you are not responsible for the designs submitted by amateurs for publication.

NB The location of the tower in question is I believe Murgon 4605, not Morgan 4065 as printed in AR. Thankfully that is not a region affected by Coral Sea cyclones. But Queensland is prone in some areas to devastating narrow band storms originating in the west. Properly designed antennas towers survive these storms, others do not - I know as I have seen two that didn't survive.

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Editors Note 12/7/200 Thank you for your constructive criticism. VK5UE

WIA adopts new 'No-code' licensing policy.

I was appalled to learn via the Internet that the Wireless Institute of Australia is adopting a "no-code" licensing policy - without formally consulting its existing membership - in a move to remove mandatory Morse code amateur radio licence tests.

I understand that the WIA Federal Convention in Melbourne on April 29/ 30 voted in favour of supporting an IARU administrative council policy that there will be an amendment to article s25 of the ITU Radio Regulations, which requires radio administrations to test prospective radio amateurs on their Morse code proficiency for access to frequencies below 3OMHz.

In the last few months, the WIA has negotiated the reduction in the Morse code speed test to 5wpm for unrestricted HF access. Although this will effectively devalue the licences of people like myself who have passed the 12wpm test and render it difficult/impossible for us to obtain equivalent (reciprocal) HF licences in countries like the USA and the UK, I have been willing to put up with this for the 'possibility' (very faint) that it may attract a few more young people into our hobby.

However, this latest move of the "no code" licensing policy is the thin end of the wedge and I oppose it absolutely - and believe it will only produce division among existing amateur radio licensees

Continued on page 50

Continued from page 49

and WIA members, along with very few new radio amateurs (read new WIA members).

As someone who has been professionally involved in amateur radio for the last 18 years and is still a relatively young man (44 years old), here are a few home truths.

1. The CB boom in the early 1980s produced a large amount of would-be radio amateurs. Prior to this, the amount of those wanting to become radio amateurs was relatively small - and this situation is the same today. There may be a lot less people getting interested in the hobby as compared to the CB boom years, but the numbers getting interested in the hobby worldwide are quite enough to keep the amateur bands well and truly occupied. The boom days of the 1980s are gone forever - let's accept that and move on.
2. The HF bands are well and truly fully occupied, with all kinds of people working all kinds of modes. However, national bodies like the WIA, RSGB, ARRL are obsessed with their membership numbers and in finding ways of attracting more members, instead of facing the reality that the HF bands are full as ever and CW is still a highly favoured mode of operation. DXpeditions love CW because you can work more people quickly using it than any other mode and thus make more contacts/attract more direct QSL revenue. Let's not get confused here - the activity levels on the HF bands aren't dying, unfortunately just national radio societies.
3. We live in a world where the personal computer is king and people increasingly sit by themselves at home in front of one, rather than going out and socialising with others. Getting people to join any sort of society or group is difficult, especially young ones - and national radio societies are affected by this phenomenon. It is vital to hang onto the members that you have, as well as chasing new ones and keep society costs as low as possible. Annoying long-standing members like myself by changes that are unlikely to achieve anything except annoying longstanding members like myself is futile and will only cause resignations.
5. As a CW operator, I am fed up with being a scapegoat for the fears of national radio societies that learning CW is the thing that stops them from gaining new members and the ambitions of a few lazy people who are unwilling to even try to pass a 5wpm Morse test. I am also *very* fed up with the continual harping of the lazy brigade of the 'death'of Morse code in the professional radio communications. CW still plays a very healthy part in amateur radio, particularly on HF - frankly, who cares what modes professionals use?

Let's try an interesting parallel here. Surfing is a fantastically simple, elegant and skilful way of riding the waves on the sea, similar to the way CW works on the radio waves. I don't hear anyone saying that all surfers should give up their boards and replaced them with surf skis.

Radio amateurs have always gone their own way throughout the history of radio and I don't think that we should be any different today. Amateur radio is a great big world and there is room in it for CW, PSK3 1, earth-moon-earth and satellite communications. Let's look at real ways we can make amateur radio *and* the WIA more attractive for old and prospective members - instead of conveniently hunting to death our great tradition of CW.

73 Steve Ireland,
VK6VZ/ex-G3ZZDNK9XZ,
PO Box *55,* Glen Forrest, WA 6071
WIA/Radio Society of Great Britain member,
Australian Regional Contributing Editor,
ARRL *National Contest Journal,* Editor/Consultant Editor, *Ham Radio Today* 1983 - 1986
Contributor to *Radio and Communications* (Australia), *Radio Today* (UK) and *CQ* (USA) magazines.

Editors Note. I think the WIA News in July and August AR cover most of the points raised.

Send letters to:
The Editor
Amateur Radio
34 Hawker Cres
Elizabeth East SA 5112
edarmag@chariot.net.au

Editing Letters – Censorship ?

Dear Colwyn

I write to say I don't agree with the policy relating to letters set out at page 56 of the June 2000 copy of *Amateur Radio.*

I think you are being too prescriptive and your policy will be off putting to many who would otherwise write to express their views.

For sure, request letters to be less than 200 words, but otherwise print them as they come. I do a lot of letter writing and enjoy the letters of others. To "censor" these letters is to detract from our enjoyment of this most important aspect of the material in *Amateur Radio.*

Best wishes and keep up the good work.

Ken Fuller VK4KF,
P O Box 396, Wynnum Central 4178

Amateur Radio and Masonic Lodges

Dear Sir

I read with interest "QRM", the VK7 Divisional Notes in the June 2000 issue of *Amateur Radio.*

I must disillusion the writer on the Notes as to this being the first occasion on which our hobby has been demonstated at the Masonic Lodge, as I had that privilege in 1982 at a now defunct Lodge in Northcote in Melbourne's north.

On this occasion a sked was arranged with John VK3AVY and the equipment used was the venerable IC22S with a quarter wave ground plane sitting at the top of the fire escape stairs. A small PA was used to enable the brethren to hear both sides of the QSO, and as a gimmick for further interest, a CRO was set up to monitor the transmission.

I do not claim this to be the first demonstration at a Masonic Lodge. and have no doubt that their have been other such demonstrations in the past.

John Ireland,
30 Clyde Street, Ferntree Gully 3156

Re:- Call Book 2001

Dear Sirs,

Thanks for call Book 2000. It's a ripper.

You might like to know there's an Australian net which has been going for over 10 years and which amateurs interested in amateur astronomy enjoy.

Continued on page 56

IONOSPHERIC UPDATE

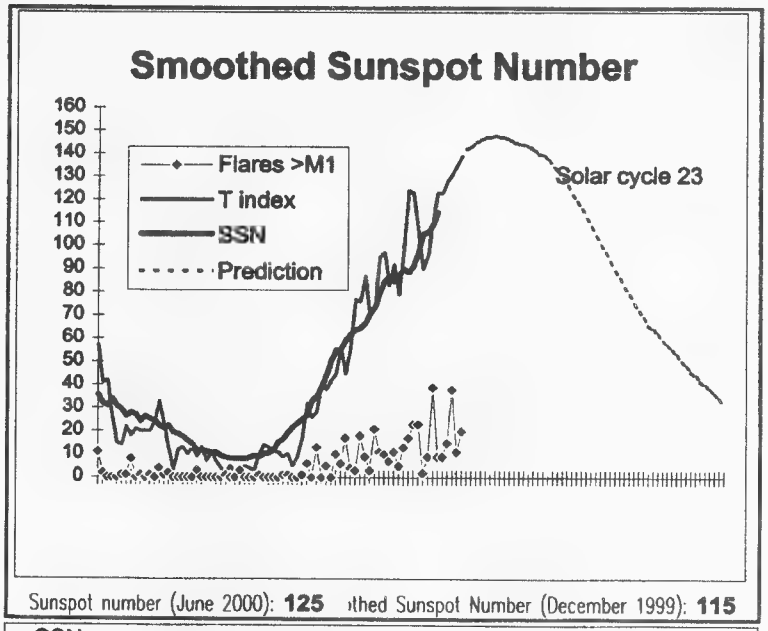
Conditions for ionospheric radio communication have been good over the last quarter as the rise in the sunspot number continues. Sunspot cycle 23 will not be as large nor has its growth been as rapid as the previous two (Sunspot cycles 21 and 22) so propagation will not be as good. It appears that ionospheric conditions are starting to resemble those found around the top of a sunspot cycle. DX conditions continue to improve. The pattern of monthly sunspot numbers continues its consistent rise meaning that the smoothed sunspot number will also be rising at nearly the same rate. Solar activity is also rising. High levels of solar activity were recorded in June with 24 flares recorded of which 4 were class X. Spread F was also observed by the Ionospheric Prediction Service on their southern Australian ionograms indicating a probable degradation in HF communications quality. The wide range in conditions associated with an approaching peak in the solar cycle is becoming more obvious: one day conditions are poor, next day you can be working the world, the day after there is nothing.

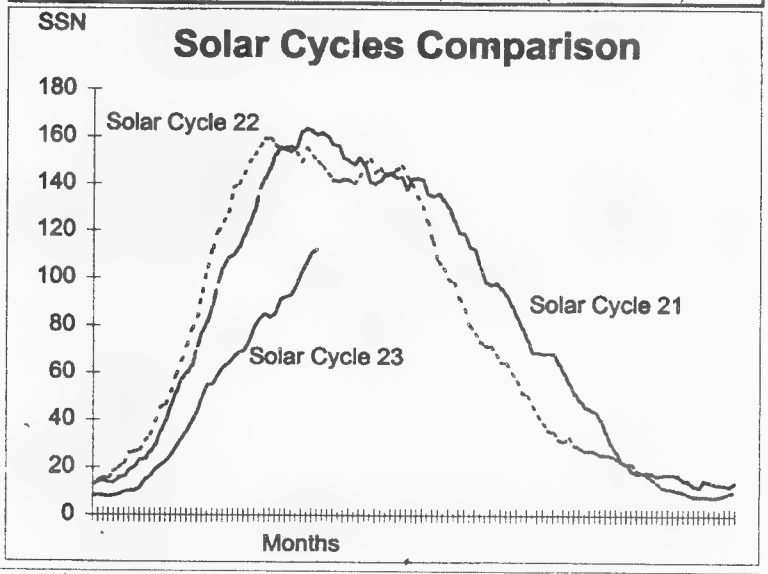
Predictions are showing that the possibility for openings on 6 metres is improving. Darwin and Townsville amateurs may care to dust off the 6 metre rig as upper deciles are now approaching 46 MHz. on circuits affected by the fountain effect (TEP) such as those to Japan

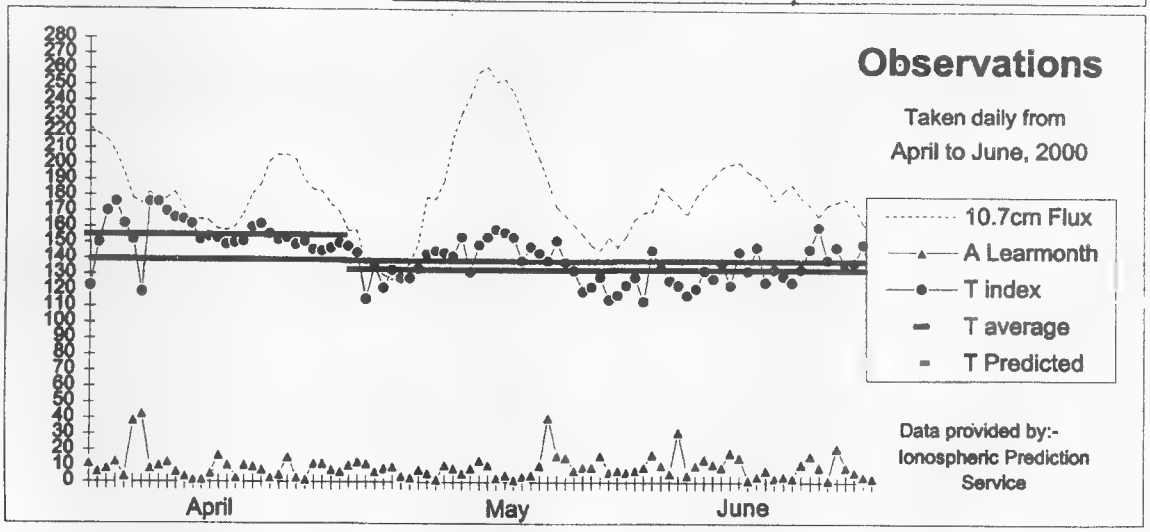
The most severe geomagnetic activity was in May when it peaked with at 41 on 24 May. The disturbance was far more severe in the northern hemisphere where it peaked at 71. Scandinavian observers quote seeing some of the most impressive displays of the northern lights (Aurora Borealis) ever seen.

No change is the predicted maximum in the sunspot cycle has been received from the Solar Environment Committee of NOAA. The graphs of observations appear to be on target for a peak in December 2000, or maybe a little later.

ar







HF Predictions

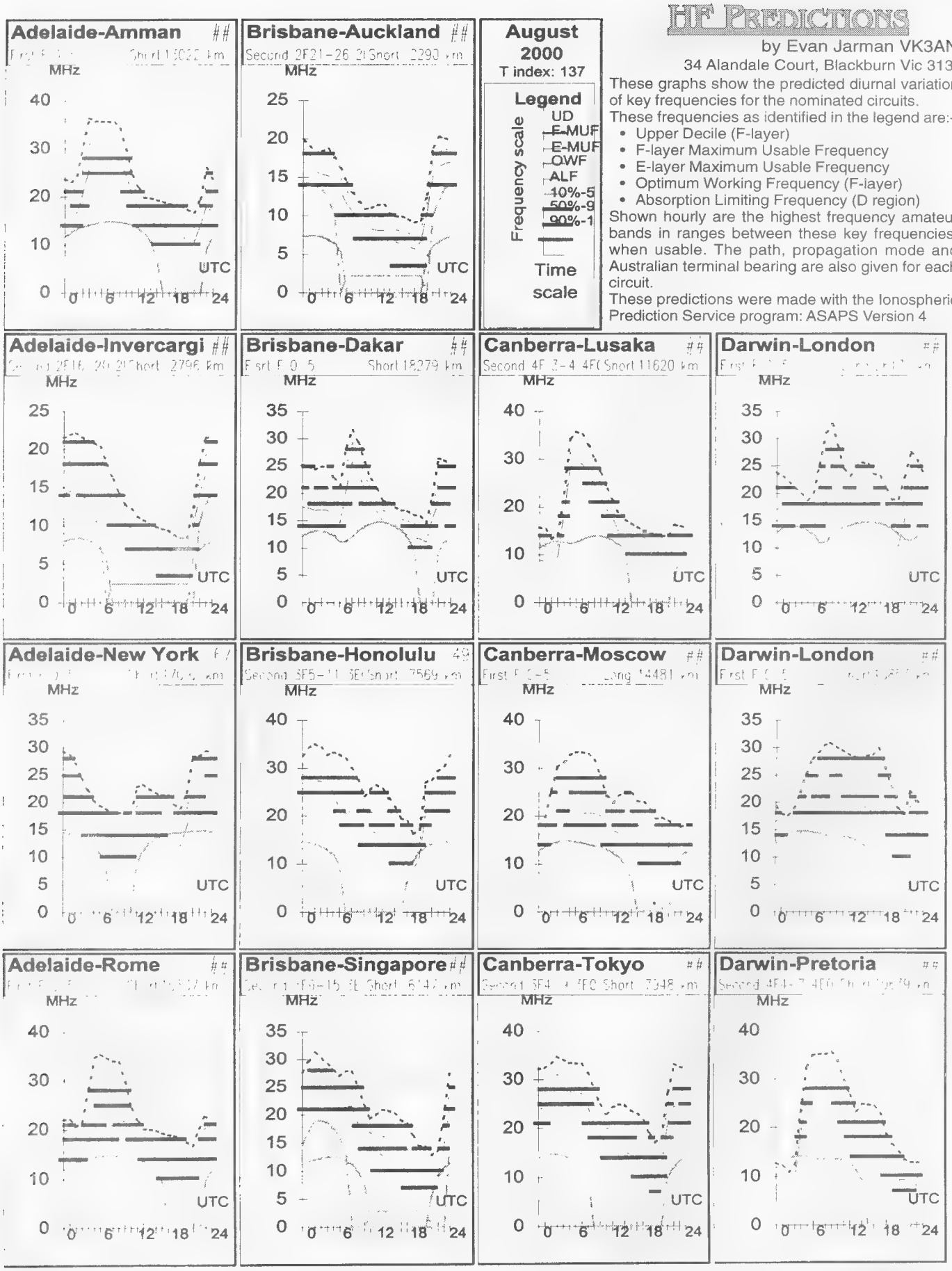
by Evan Jarman VK3ANi
34 Alandale Court, Blackburn Vic 3130

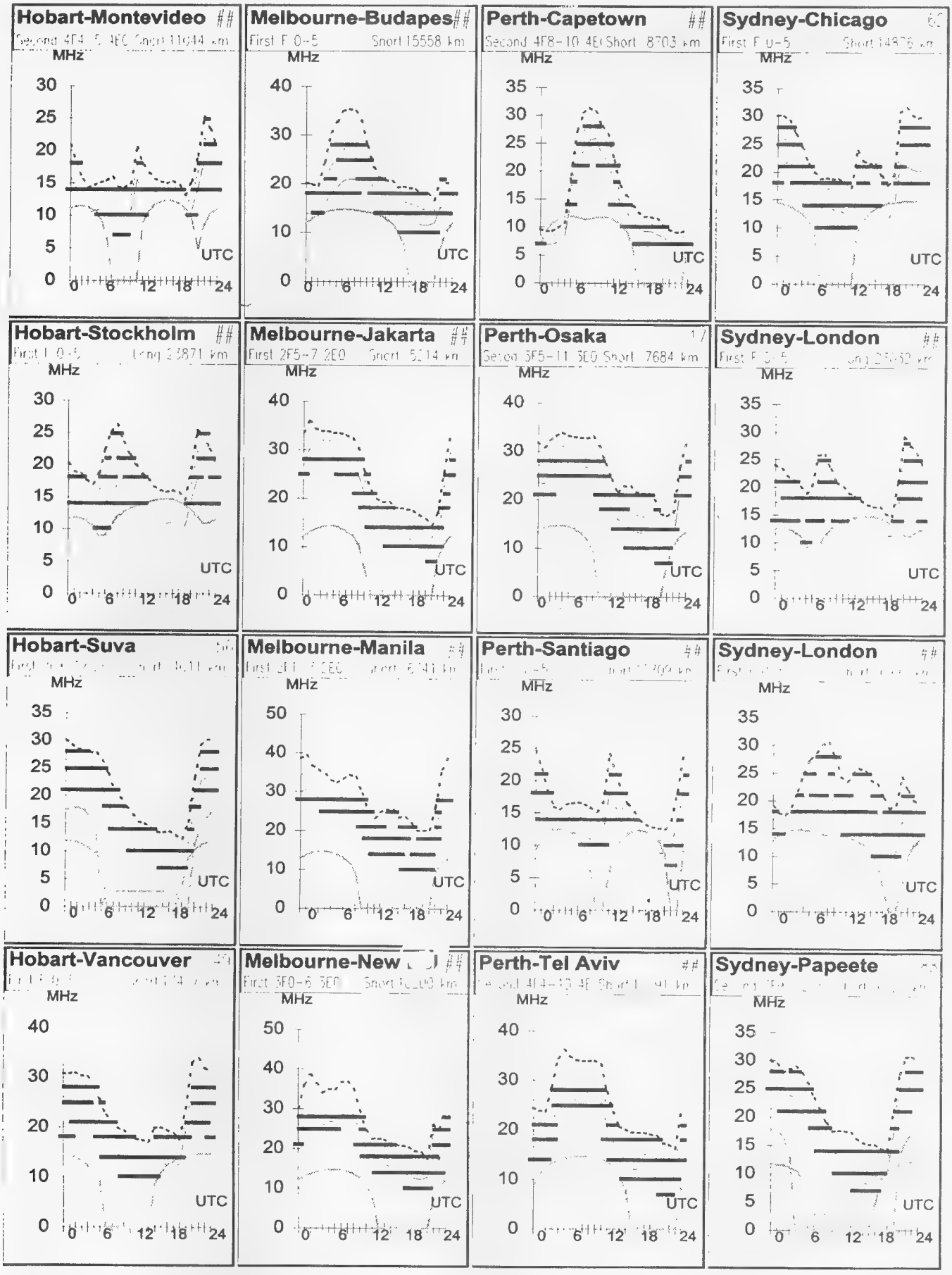
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits. These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

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- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
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- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
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• Collins 678Y-1 Maintenance kit for Collins 618T models. Complete with accessories and module extenders and Instruction Book. Also Collins 678P-1 Test Harness for testing Collins 618T systems. With incomplete set of connecting cables. For inquiries call Peter VK1CPK, phone 02 6231 1790, FAX 026296 5712.

• Kenwood TR-9130 2m all mode transceiver plus 5/8 whip and 1/4 wave antenna Serial No. 5030197. $175. VK1ZL QTHR 02 6281-3956

WANTED ACT

• Kenwood transceiver TS770. Please contact Virgil VK1VI on 02 62555677 AH or email at vionescu@ozemail.com.au

FOR SALE NSW

• Rotator KR-600RC c/w display, cable and instruction manual. $320. John VK2BJU 024841 0272 marland@goulburn.net.au

• Computer old, working, sell or swap for old military radio, or old valve equipment. IBM clone, mini tower case, 486DX, 33MHz, 8Mb RAM, 80Mb disc, 5" floppy, DOS, Windows 3.1, 14" colour monitor, mouse, keyboard, working. Ray Robinson VK2ILV Sydney 02 94898561 robinson@srsuna.shlrc.mq.edu.au

• Icom IC756 TXCVR, absolutely as new. 6 months old. C/W optional sideband filter. Speech synthesizer. Perfect condition. Original Packing. $3500 VK2APP QTHR. 02 6382 6086 pcpage@dragnet.com.au

• Deceased estate of VK2ARS, Yaesu FT-ONE, FT-101E, SP-102, FTV-650, FC-102 ATU, Drake TR7, RV7, R4C, Icom IC251A, IC471A, Collins 75S1, KWM2, Codan 7727-TB, Hallicrafters SX117, Radio Shack HTX-100 10m, HTX-212 2m, Heathkit SB102, Shimizu Denshi SS-105S. Reasonable offers accepted. SASE or Email for full list of items and other equipment. Allan VK2GR 02 9022 5412 B, 02 8850 0141 H QTHR Email: allan.b.mason@compaq.com

• BOOK: "Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations." 2nd Edition. $16 posted Australia. 90 Pages. Q,X,Z Codes, 97 Phonetic, 20 Morse Codes, Phillips, Myer, 10,11,12,13 Codes. Much other info. Internet - http://www.nor.com.au/community/sarc/phonetic.htm VK2JWA, John W.Alcorn. QTHR. 02-66215217. Email jalcorn@nor.com.au

• "INTERNET Connect from Port Macquarie to the Gold Coast from 80c per hour. Summerland Amateur Radio Club. For info -http://www.nor.com.au/community/sarc/sarc.htm John, VK2JWA, QTHR, jalcorn@nor.com.au. 33 Spring St, Lismore, NSW, 2480. Ph 02-66215217"

• 2 ex-RAAF alloy Antenna towers. Seven sections, length 3.6m approx. per section. Base section 1m x 1m, guy points at the top of the 1st, 4th, and 7th sections. Crank up by heavy chain & sprocket. Has a built in, fold down working platform at the top section of each tower. They are already taken down and are ready to go. Buyer to arrange transport from the site. Located in the Springwood area of the Blue Mountains. $1000.00 each or genuine offers considered. 1 only Wind-up, tilt over tower approx. 15m still standing. Buyer to take down and transport. $350.00 or genuine offer. Photographs can be e-mailed to genuinely interested callers. Greg VK2KGA, QTHR, e-mail vk2kga@dingoblue.net.au 0411 025 791, 0247 398895 or Phil VK2FIL, QTHR, derbyfil@optusnet.com.au

• Alinco DR-610 2m/70cm. Comes complete with boxes all remote head mounting hardware, operation and service manuals. Original owner and is in mint condition,$750.00. Earle VK2TEK 0407-287-030 all hours or earle@sydnet.com

• Revex SWR and power meter model W500 1.8-60MHz 2kW PEP virtually brand new $95 VK2DX QTHR 02 4751 9795

• Clearance surplus gear suitable repair or at worst spare parts. Icom IC55 50MHz multi-mode, existing faults loss VFO tuning when hot and no memories. Kenwood TS700-SP 144 MHz good performer until internal power supply failed. Both good clean units with manuals. Good potential for technician $200 total for the two. Sid VK2SW 02 6922 6082

• Commercial type rotator model E motator, 1103 MXX control box, 100ft cable brand new $1700. Drake TAXC MSA 5 pak P/Supply R-4C transmitter good condition $600 s/no 22695/24668. Yaesu HF transceiver FTD xx 560 good condition $450 s/no II 310158. All units have manuals. VK2KVH 02 4630 9158 after 5pm.

• MJF antenna tuner model 941E, coax, open line, long wire, absolutely brand new still sealed in plastic. Genuine snap $200 Les VK2AXZ 02 4954 0893

• Kenwood TM733A FM VHF/UHF dual band transceiver with mobile mounting bracket. DFK-4B detachable front panel kit, suitable mobile or base, s/n 70105757 all leads VGC $450 Perth plus mobile antenna HF+6m +2m excludes spring base $150. Cushcraft Vertical Base Antenna AR270B 2m/70cm $100 VK2JJS John 02 9498 2248 QTHR Sydney

WANTED NSW

• Old Unloved equipment, big dirty heavy old receivers that you no longer want or cannot move! Spiders and all. Mad nut collects old "boat anchors", for receiver display. Parts, junker set, I am the man with the broom. As per articles previous in AR. Contact John 02 9533 6261 L21068.

• Elmac SK-406A chimney to suit 3-500, 4-400 valve etc. Also HR6 Anode caps Glen VK2FC 02 4982 6800

• Old Telecom ETPs and Els on radio, TV and external plant. Will pay $$$$ George VK2KGG 02 9411 4442 georgg@acay.com.au

• Crown brand light duty automatic rotator and control box. If control box only is available this would do. Pay good price for right gear 02 4944 8484 L20747 17 Tumut Street Dudley NSW 2290 Grahame Foster.

FOR SALE VIC

• Drake TR7 250W transceiver with PS7 power supply covers all hambands including WARC, receives 0-30MHz extras 1.8kHz 6kHz filters, fan, slow dial drive, Shure mic, shop manual, recently serviced and realigned by Drake expert $1100 ono you collect VK3WW 03 5433 3654

• Yaesu FT736R VHF-UHF transceiver 6m-2m-70cm with MDIC8 desk mike, manuals, orginal packing. This unit brand new never commissioned. Reason insurance settlement after fourth shack robbery. Subsequently lost interest gear never used again orig cost $2664, asking price $1800 ono Bob VK3ZRY 9578 4961

• Deceased estate VK3DIM/VK6MD Kenwood AT250 $170, Yaesu FT8100R [2yo hardly used] $550, Amico Pre-amp PT-2 $35, Linear FL2100Z $450, Icom IC-T8E barely used $550, Yaesu FRG9600 UHF/VHF scanner $300, Kenwood MA 4000 duplexer $150, Kenwood SW 200 $200. TV3300 low pass filter [up to 1000W] $60. Outbacker multi-band car antenna [has 3 additional bands/frequencies] on modified Reece-Hayman tow hitch $400 all inclusive. 2 x 2metre car antennae $50, Rotator & Daiwa medium duty round controller $250, Yagi beam element [6m/5 band] $50, Grounded vertical Butternut multiband $150, Dual band mobile antenna $50. Coaxial cable used and new, make offer. Yaesu FL2100Z linear amplifier plus 4 valves $750 all inclusive. Yaesu Landliner phone patch Make offer. YO 100 Monitor scope Make offer. Will sell everything for $3000. Phone Deborah Sim on 0411 111 430 or 03 9876.2646 after 7.00pm

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• Beam 40 metre three element full size 48ft boom adjustable hairpin matching, see assembled on the ground. $1250 ono VK3CX 03 5422 2860

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FOR SALE QLD

• Tubes 6JSGC NEC Japanese new, direct replacement Yaesu transceivers pair only $200 PA tubes. Yaesu FP757HD power supply with built-in communications speaker $295. Kenwood MC-80 base microphone $100. Kenwood PS-52 new heavy-duty power supply never used $475. Kenwood AT-230 antenna tuning unit $225. John VK4SKY 0417 410 503 benoel@fan.net.au

• ICOM IC251A 2m all-mode circuit diagrams needed for repair will pay for copying or will buy unwanted IC251A for parts VK4FPM 07 4125 1690

• Plug in coil boxes for National HRO RX also dog house power supply for same. WWII type A Mk3 TX RX and type 3 Mark II or part sets. Ray VK4FH 07 3299 3819 fax 07 3299 3821 Box 5263 Daisy Hill Queensland 4127.

FOR SALE SA

• Kenwood TS820 with SP-820 s/n 540166 $400. Yaesu FT-301S s/n 303363 not working, best offer 3x 13.8DC power supplies. Vicom model VC-2 SWR power meter s/n 32359. VK5AAM 08 8295 6395 QTHR

• Philips FM93A 9 channels 25W $100 ono. Phillips FM1680 10 channels 25W includes mobile bracket $80 ono. Rob VK5CS 08 8568 5411

WANTED WA

• Keen collector looking for old microphones will look at anything any condition Wayne VK6FT. 08 9390 8241, vk6ft@iinet.net.au

WANTED TAS

• Vibroplex semi-automatic morse key in very good condition 03 6391 8925 jmculloch@vision.net.au

MISCELLANEOUS

• The Australian Army Signals Museum in Melbourne would like to get two WW2 radios for its collection. They are man pack sets, WS208 and WS128. If you can help please contact Allan Doble VK3AMD QTHR 03 9570 4610 any time.

• Swap Collins mechanical filter 500kHz-3.1kHz for 455kHz-3.1kHz similar Collins type VK5RG 08 8379 1889.

TRADE ADS

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• **Campervans** de ZL2QB. YL-2000 Meet in New Zealand. Campervans with ham radio for hire: www.kiwicampervans.co.nz. Karen and Dieter, Nelson, NZ. Phone Fax 0064 3 543 2022, e-mail kiwicamper@ts.co.nz

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Continued from page 50

Perhaps it could be listed in the year 2001 "nets" page.

In your column which lists astronomical events, you might like to list the following:-

The Astronomical Society of Victoria has its own callsign:-VK3EKH. Using that callsign Russell Ward has been conducting an amateur radio net for hams and short wave listeners on the subject of astronomy since August 1989. The net commences each Friday at 22:00EST on 3.`543 MHz. Russell lists astronomical news for the week and invites stations to call in. There are a few regular stations that call in each Friday, and over the years, a hundred stations have taken part. Many short wave listeners enjoy listening on the net. Topics discussed range widely over the subject of astronomy and include matters of interest to radio amateurs such as meteor scatter propagation, sunspot and auroral activity, satellite communications and meteor showers.

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New stations are made ,most welcome.

Another thing for the Call Book 2001. Please change my call in the examiner's list from VK5NDZ to my present call of VK5JB.

Geoff Bridgeland VK5JB,
2 Plymouth Avenue, Sturt 5047

Morse Code And The Full Call

I have been reading the "CW Debate" with interest over the last few years. There have been many equally good arguments both for and against its retention, or reduction in speed requirements. I am of the opinion, however, that complete removal of it as a requirement makes the attainment of a "full call" less than equivalent to the wonderful privileges and responsibilities that one achieves with the granting of that call. Whether the horse has all but bolted in this matter is difficult to ascertain at the moment, but I would like to make the following suggestion:- That in order to attain the full call the (prospective) amateur be required to pass the Regulations and Full Theory examinations, as at present, plus either the 5 wpm Morse, or an examination in Radio-computer .Techniques. For the latter, I suggest that packet radio would be most appropriate. I suggest that the examinee would be required in the exam to connect together the appropriate hardware, install the software, and successfully transmit and receive appropriate messages, using correct protocol and procedures. A short multi-choice test would complete the examination. I wonder how other amateurs feel about this? Surely packet user groups would be pleased to help, both in the setting of standards, training, and the conducting of examinations. Many of those who have been "putting off" this last step because of no interest in, or fear of, Morse, would be happy to take up this challenge. Morse Code ("CW") is a lot of fun and a great challenge, but let us also be seen as a modern and forward-looking organisation, ready to draw in those whose interests have been formed in the computer age.

John Elliott, VK5EMI,
8 Clearview Avenue, Belair, SA 5052.

Band congestion due to contests

The Editor
Amateur Radio.

I decided to write this as the 10 metre band, although open it not useable today due to a contest. You are welcome to publish my call sign and Email address if you wish.

I assume one of the purposes of contests is to increase usage of the amateur bands. Be that as it may it seems logical to increase activity in areas of the bands that get little use. I am a regular 10 metre operator and seldom use other bands. Ten metres is a large band with little use above 28.600 to about 29.000 with the exception of a few spot frequencies. Regular users of 10 metres are generally between about 28.400 and 28.600.

I am constantly frustrated by contests that cause major congestion between 28.400 and 28.600 more specifically 28.450 to 28.500 and do little to activate the rest of the band. Wouldn't it be practical and reasonable, if contests had a no go zone in the band. For example 28.450 to say 28.550 should be reserved for non contest use. There is still plenty of band to activate. We have nominal portions for CW so why not (NC) NO CONTEST. Contests could easily be considered a different mode of operation.

As I stated I don't operate other bands but I suggest that this problem occurs for many non-contest operators of all bands. Perhaps some band space should be set aside in other bands as well. I know there is considerable interest for my suggestion on 10 metres and it would be interesting to run a poll to see just how many operators share my frustration.

Kim Rhodes, VK6TQ,
Email: -rhodesk@bigpond.com

ar

Have you heard this week's Divisional Broadcast?

See page 30 for times and frequencies.

YAESU'S DONE IT AGAIN

Yaesu FT-100 Ultra-compact HF/6m/2m/70cm Mobile

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Now you can enjoy the fun of operating on all bands from 160m to 70cm, either at home or in your car, and at a fantastic Yaesu price.

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The FT-100 is supplied with an MH-42B6JS hand mic, DC power lead and comprehensive instructions.
D 3285

YSK-100 remote front panel kit.
D 3286

YAESU

Included as standard:

- Digital Signal Processing on both transmit and receive
- Effective IF noise blanker
- Electronic CW keyer with 50 character message memory
- Spectrum Scope function
- Massive receiver coverage (100kHz – 970MHz, less cellular)

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2 YEAR WARRANTY

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* *Requires third party TNC*

1302 IBC 4 col.

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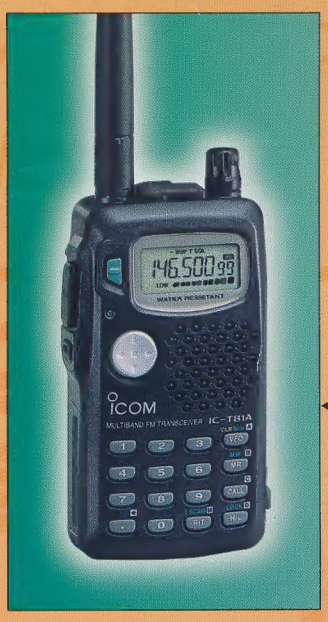

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